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NEW YORK, SATURDAY, MARCH 31, 1917

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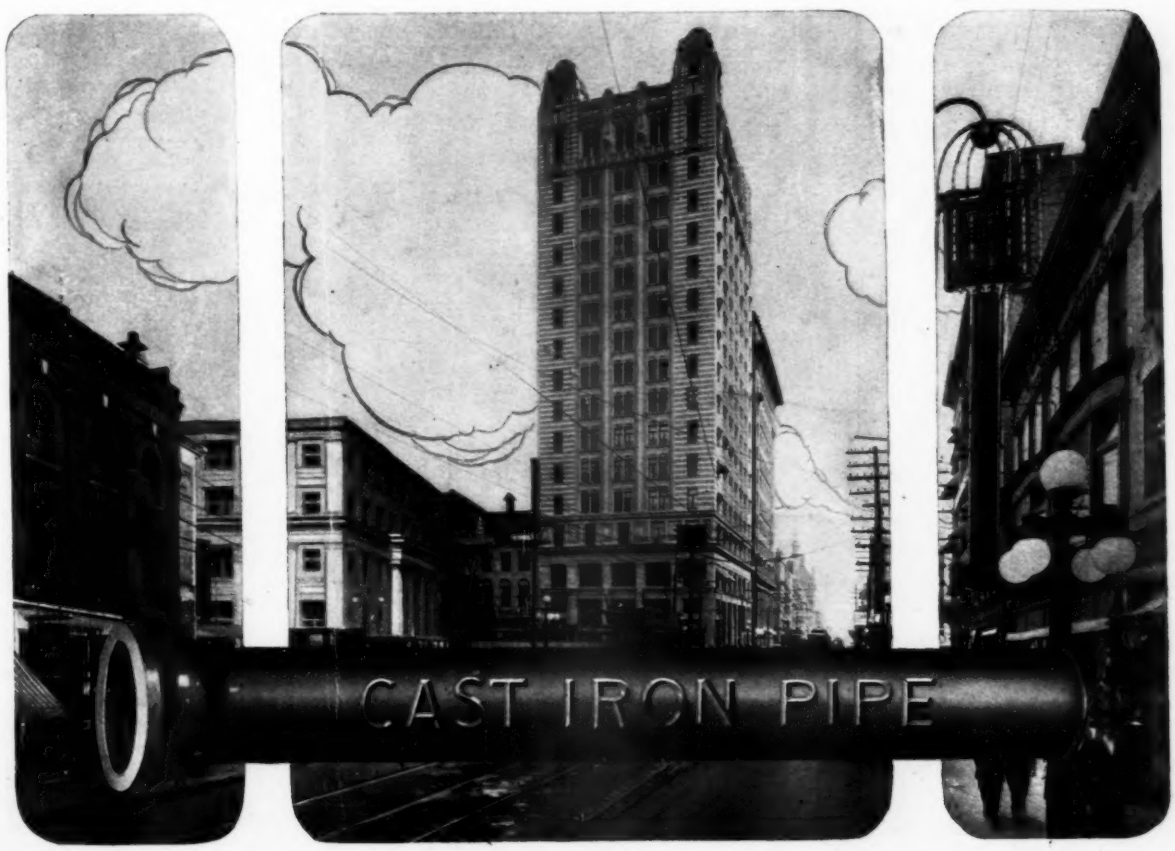

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KOPPERS

BY-PRODUCT
COKE AND GAS OVENS

The most efficient method of carbonizing coal is in KOPPERS OVENS and the best coke and by-products are produced by this process.

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AMERICAN
GAS ENGINEERING JOURNAL

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Outside Lighting of Moving Picture Theatres an Immense Field for Gas Lighting

Bright Lights Almost an Essential Element to Success of Such Theatres—Figured on Minimum Basis Total Consumption Throughout Country if Such Lighting by Gas was General Would Be 240,000,000 Cu. Ft. per Year

By J. E. BULLARD

Some 20,000,000 people daily visit over 20,000 motion-picture theatres in the United States and spend about $2,000,000. The present prosperity of the industry, the fact that bigger and better theatres are changing to motion pictures, and that now the very best talent is engaged in the production of the films, especially when the youth of the business is taken into consideration, points to an even greater growth in the future than has taken place in the past.

There is scarcely a community of any size in the nation that does not boast of its moving-picture theatre. These theatres are almost invariably equipped with the best outdoor lighting system of any building in the immediate vicinity. In fact it would seem that brilliant outdoor lighting is one very essential element of the ultimate success of such an enterprise.

There are probably not less than 20,000 theatres that average at least 300 evening performances a year. No theatre can be satisfactorily gas lighted with less than 20 cu. ft. of gas per hour burned in two outdoor gas arcs. Most theatres will require more than this. Many will require several times this amount. Each theatre will need the lighting at least two hours per night. This gives a minimum gas consumption of 20,000 times 300 times 20 times 2 or a total of 240,000,000 cu. ft. of gas per ear. This consumption if sold at an average of $1.00 per thousand

NEW YORK MOVING PICTURE THEATRE WITH OUTSIDE LIGHTING BY GAS

cubic feet would amount to $240,000, a revenue that is well worth going after for itself alone.

Effect of Such Lighting on Welfare of Gas Industry

This revenue, however, is perhaps not the most important phase of outdoor lighting for moving-picture theatres. If all these theatres had their fronts brightly lighted with gas lamps, 20,000,000 people daily would pass under them and even more people would see them. This would certainly be an excellent advertisement for gas lighting. It would demonstrate to about one-fifth of the total population every day in the year that the brightest and the best outdoor lighting can be done as well or better with gas than it can be done in any other way.

There has already been enough moving picture theatre lighting done by gas to result in standard installations for different classes of theatres. For neighborhood theatres the practice of installing a five-mantle gas arc on each side of the entrance as shown in the illustration given of such a theatre in Providence, R. I., has become almost universal. The only variation from this system is to use three-mantle instead of five-mantle arcs where the smaller lights will prove brilliant enough.

Arc Types Most Used

Since the three-mantle lamps will consume at least about 12 cu. ft. per hour each and the five-mantle lamps around 17 cu. ft. per hour each and will average at least 600 hours of burning per year this gives a minimum revenue for gas at $1 per thousand of $14.40 for the small lamps and $20.40 for the larger lamps. The actual revenue for the outdoor lighting will almost exceed this.

Theatres in the business districts will require much more light than these neighborhood theatres. Even in the small isolated business sections of a large city the moving picture theatres use a great deal of outdoor lighting. Another illustration shows such a theatre lighted with five outdoor five-mantle gas arcs hung on ornamental brackets. The hourly consumption of these lamps total about 70 cu. ft., and they are used about 1,500 hours per year, or with gas at 80c per thousand yield a revenue of $84 per year.

INSTALLATION ON RESIDENTIAL SECTION THEATRE

Urges More Immediate Use of New Ideas

C. W. Bradley, in Presidential Address Before Illinois Gas Association, Dwells at length on Materials Situation—Urges Greater Efforts for Good of Gas Industry

It has been in my mind that the full benefit of the papers and ideas read and discussed at these meetings is not returned to the companies, declared C. W. Bradley in his presidential address before the recent annual convention of the Illinois Gas Association. We listen to a good paper with a valuable suggestion, applaud it, discuss it after the meeting in the lobby and give the author his credit. But do we carry it home and put it in practice, or, if out of our department, do we call the proper officers' attention to it and give our recommendation?

Ideas That Lie Dormant

During a conversation with an engineer of the Bureau of Mines, it was stated that the regular course for new ideas worked out and published was to lie idle for from one to ten years, then be re-discovered by some one in the industry affected and become standard practice. Let us not wait the ten years before using what we have.

The nominations to the fellowship at the University of Illinois did not come up to our expectations; there being only three to choose from. I hope more interest will be shown next time. We should have our percentage of graduates from the engineering courses coming into our industry yearly, specially trained for their work, and I want to recommend that this association throw what weight it can towards this result.

We are at war—real war—against the allies, Rate Reduction and High Cost of Labor and Material. We can no longer even think of a reduction in our rates, and it is probable that at the present time some of us are entitled to go before the commission and ask for an increase.

The rules of the commission generally considered fair should be gone over to see what reduction in requirements can be made in order to meet the present situation and give as much relief as possible.

Fuel is now practically purchased on the open market at greatly increased prices and the railroad situation is such that even this supply is limited.

Serious Stock Situation

I believe that every plant in the state has so depleted its reserve stock that there are only a few weeks, perhaps only a few days, between running and closing down. The price of oil is almost prohibitive and it is stated that we may expect it to go still higher.

Such labor as we can get has been treated fairly and given its share of increase without considering the effect on the balance sheet. What effect these conditions will have on the industry, time only can tell, but it is during such times as the present that real men are made and have a chance to show their calibre.

The ones who can, by their energy and brain, make a stand against these allies and bring their companies out of this battle with the earnings exceeding the expenses by enough to make a fair return on the money invested will be the future captains of the industry.

Let us all work harder than ever before to keep our industry where it has always been—in the front ranks of sound, safe investments.

Boston Output Record Increases

The gas output of the Boston Consolidated Gas Company for February was 515,897,000 cu. ft., an increase of 4.9 per cent over February a year ago, although the comparison is with a 29-day month last year. The January output was 589,541,000 cu. ft., a gain of 10.9 per cent. over the same month a year ago.

Would Make the Selection of Domestic Ranges for Sale by Gas Company Essentially an Engineering Proposition

W. C. Buttner Advocates Oven Insulation—Discusses Experiences in Testing Domestic Gas Ovens—Why French Bread and Rolls Cannot be Baked in Ordinary Domestic Range

It seems strange that at this apparently late day we should consider the domestic gas oven with an idea of improvement. It is, however, a fact that there still remains a wide margin for improvement in the present common types of domestic gas ovens, declared W. C. Buttner, of the Peoples Gas Light & Coke Company, of Chicago, in his paper on "Some Results Obtained in Testing Domestic Gas Ovens," presented at the recent annual meeting of the Illinois Gas Association. When I speak of the present common oven types I mean the general types of gas ovens which are found in thousands and thousands of homes in daily service.

These common types of gas ovens, if I may refer to them as such, are the outcome of a gradual evolution verging the gas ovens of the past with the ovens of the present. And, to-day, the gas ovens of the future, (which since they are already in evidence, I am really taking a liberty in referring to them as the ovens of the future) are the outcome of a rather recent and rapid evolution.

Tardiness in Improvements Not Due to Inability of Engineer

I am certain that this slow change of the past which has taken place in the oven design is not due to the inability of the engineer, whose duty it might have been to evolve an efficient appliance, but to the desire of the gas man to obtain a gas-consuming unit which would perform the required operations with the smallest first cost to the consumer.

Now that we are awakening to the realization that there is a possible competition in the future in the form of an electric oven, we hasten to consider that we can improve our appliance and insure the continued supremacy of the gas oven, not only from an economical standpoint, but also from the question of cooking performance.

In the absence of formidable competition it was only natural that the gas industry should demand that the oven manufacturers produce an appliance which would satisfactorily accomplish its purpose, for as little first cost as possible. This, then, enabled the gas interests to dispose of a larger number of gas-consuming appliances.

It is only within comparatively recent time that the larger gas companies have become sufficiently broadened to establish and maintain appliance testing laboratories. In these laboratories, when equipped with the necessary brains and apparatus to carry on modern scientific investigation, much good has been accomplished for the gas industry at large, both directly and indirectly.

Description of Oven Types

The many types of gas ovens may be primarily divided into two general classes: first the uninsulated oven, and second, the insulated oven.

Each of these two classes may again be divided into the ovens that are ventilated or which are heated by the passage of the flue products around and through the oven, and the ovens which are heated externally without allowing any flue gases to pass into or through them.

The type of gas oven which is probably the most common is the uninsulated, ventilated oven. It is usually built of sheet iron with a cast-iron frame or even a frame of steel angle irons.

The uninsulated, ventilated or circulating ovens, as they are sometimes called, are built with a double shell; that is, with an inside oven and the outside shell. The hot products of combustion, with the excess secondary air, pass around the inner oven through the space between the outer shell and inner oven. From this space the hot products are admitted into the oven at various openings in the inner oven shell, where they circulate through and across to the flue outlet. In the passage of the hot gases across and through the oven they come in contact with the food being cooked and thus impart heat to the various articles in the oven.

Insulated Oven the Type Which Should Receive Most Careful Consideration

The burner in the common uninsulated and ventilated oven usually serves two purposes: first, it heats the oven, and second, it furnishes heat for the broiling oven below. Some ranges are, however, designed with separate burners for the broiling and baking ovens.

The insulated gas oven is the type which should receive the most careful consideration, as it is comparatively new. The insulation is used to help retain heat inside the oven or to overcome excessive radiation and convection losses from the outer shell.

These ovens are usually designed with three sheet metal shells, the insulating material being packed between the outside and middle shells.

The insulating material usually consists of asbestos fiber alone or mixed with some refractory substance, artificial mineral wool or a kind of slag glass and sometimes kieselguhr, which is an infusorial earth.

There is a space between the middle shell and the inside shell or inner oven which is allowed for the passage of hot flue gases. The externally heated oven would have no openings in the inner shell for the flue gases to enter.

The hot products circulate across the bottom, up the sides, over the top and down the back and out into the flue. Other insulated ovens, which utilize the hot flue products to do the cooking by circulating them in the oven, are usually designed with two shells, between which the insulating material is packed. The hot flue gases are admitted through the bottom of the oven from the burner located in a broiling oven below. Some provision is usually made for baffling the flue gases at their entrance to the oven, so as to make a more uniformly heated oven.

Other types of insulated ovens have a burner which is designed to heat the baking oven alone without the broiler. In these types three shells are used, the two outside, containing the insulation, and the inside shell, acting as the oven around and through which the hot flue gases pass during the heating.

This type of oven usually has some provision for absorbing heat from the flue gases, which it can later give off to the oven, and help maintain a cooking temperature in the oven for a considerable period after the gas supply is cut off. For this purpose soap-stone

blocks are placed inside the oven for absorbing and storing up the heat.

Some Methods of Testing

The tests that should be made on gas ovens to determine the superiority of one over another are best divided into two parts: The experimental investigation and the practical investigation.

In the experimental investigation, several subdivisions may be made. The object, however, is to express the efficiency of the oven tested in some substantial form, so that the action of one oven may be compared with that of another. The oven burner is usually the first thing that is investigated. Tests are made for incomplete combustion, back-fire, oven lighting, the way the flame travels along the burner openings and a general study of the adequacy of the burner for the oven.

The next step would then be to determine the speed of the oven, that is, how long a time is required to heat the oven to, say, 500 deg. Fahr., which is an arbitrary temperature used in testing each oven so as to make the tests comparable, using the maximum rate of consumption of the properly adjusted burners at some average gas pressure of, say, 50-10 in. of water.

Besides the time, the amount of gas burned in standard cubic feet is also determined. This data can be expressed very nicely in the form of a curve showing the heating of the oven by minute temperature observation, and then to illustrate the heat retaining qualities of the oven, a cooling curve may be plotted from data obtained after cutting off the gas supply when the temperature reaches 500 deg. Fahr., and continuing the minute temperature observations. This curve will then show the time required to cool the oven from 500 deg. Fahr., to, say, 200 deg. Fahr., and the figures thus obtained in testing one oven may be compared with data from another oven test.

Another test may be made by allowing the oven to heat at several different rates of consumption within the minimum to maximum range to determine the highest temperature which can be reached at each adjustment. This in a curve will show the temperature which is attainable in the oven at a certain rate of consumption. By comparing the temperature obtained in the various ovens at a gas rate of, say, 20 standard cu. ft. per hour with a gas pressure of 50-10 in. of water, some very itneresting figures can be obtained.

Heat Lost Up Flue

The next step would be to determine the amount of heat which is lost up the flue with the products of combustion and excess secondary air. The oven being tested is allowed to heat with a rate of gas consumption of 20 standard cu. ft. per hour until a constant temperature is obtained. A sample of the flue gas is obtained near the top of the oven stack. The stack is not connected to a chimney, the flue gases being allowed to pass into the room at the top of the oven. This is done to avoid possible differences that might arise due to variation in draft from one day to another.

At the same time that the flue gas sample is taken, observations of the flue gas temperature and oven temperature should be made. Also a check on the rate of consumption should be carefully checked. It is necessary to determine the heating value of the gas being burned. After the flue gas analysis is made the following points of information may be calculated.

The cubic feet of excess secondary air, per cubic foot of gas burned.

The total volume of flue gas per hour.

The percentage of heat lost up the stack.

These figures, obtained on different ovens, vary greatly and tend to show the way in which the oven utilizes the heat developed by the combustion of the gas.

Use of Thermo Couples in Determining Heat Distribution

The temperature distribution in the oven may also be investigated by a system of thermo couples placed in various positions in the oven. The cold ends of the couples are connected to a switchboard, so that by opening and closing the various switches the temperature at a given point may be read at a pyrometer. Seven or eight temperature readings can be made in a short period of time.

The practical investigation consisted in making several cooking tests, from which the amount of gas necessary to occomplish certain results in one oven could be compared with the amount of gas required for the same test in another oven. For example, one of the cooking tests consisted in roasting a piece of beef in each one of the different oven types. In order to obtain roasts cooked to the same degree, a thermo couple was inserted to the center of the meat; when the pyrometer indicated 160 deg. Fahr. on the inside of the roast it was considered finished. In each case a three to three and one-half pound roast was used and as near the same grade of meat as possible. A temperature of 160 deg. Fahr. on the center of the meat gave a roast which was "well done."

Biscuit tests may also be made from which the distribution of heat in the oven can be obtained. For this test the biscuits may be placed in various points in the oven. The biscuits that are browned more than others indicate a hotter part of the oven.

Oven Efficiency

In expressing the efficiency of an oven it is hard to make a clean-cut statement on the basis of percentage, but a comparison of the behavior of the oven tested with that of another oven of recognized merit may be made. In this way, while we are expressing efficiency, we can at the same time show which of several ovens would utilize the least gas to accomplish the same cooking results.

The question of oven heating, as I wish to discuss it, is a consideration of the oven as to the way it accomplishes its object. We use an oven to do certain things for us, and in order to accomplish our end we must apply heat to the oven. The heat applied to an oven may be produced in various ways, but in this paper it will be considered as being developed by the combustion of gas.

The reason we cook anything is to make it more palatable and, I might say, easier to digest, but such a statement would probably cause some heated discussion because there are some authorities that claim foods are more easily digested when eaten raw. At any rate, we are accustomed to eating most of our foods cooked, so we will assume that it is necessary.

After we have developed the heat in the oven by the combustion of gas in the oven burners, we will proceed to the consideration of how the oven applies the heat to the food to be cooked. It has always been a mystery to me why it was that the domestic cooks could not bake French bread and bread rolls, such as are served at hotels and restaurants. It is not apparently a question of temperature, because the domestic ovens may be

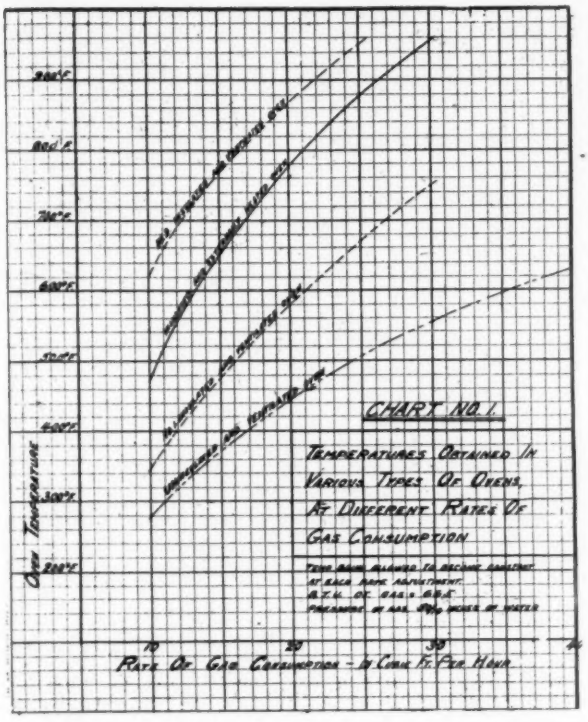


CHART NO. 1
TEMPERATURES OBTAINED IN VARIOUS TYPES OF OVENS, AT DIFFERENT RATES OF GAS CONSUMPTION
Oven Temperature
Rate Of Gas Consumption - In Cubic Ft. Per Hour
10
20
30

SHOWING TEMPERATURES OBTAINED WITH VARYING AMOUNTS OF GAS

heated to exactly the same temperature that the bakers' Dutch ovens are, but the reason seems to be that of heat application.

Making French Rolls in Ventilated Oven

After I had put considerable study on the domestic ovens, I took an opportunity of observing the methods of baking French bread and rolls in a large hotel bakery. I then tried to bake some French rolls in a domestic oven.

Instead of getting a nice, thin crust of an even golden brown, I found that, while my rolls were baked through, they were brown on the top, white on the sides and only slightly browned on the bottom. The crust was very thick and dry, extending far into the roll. The white part at the side of the roll was dry and hard, but seemed as well done as the brown crust above.

The reason that I could not obtain, with the same temperature, the same kind of golden brown rolls in the uninsulated ventilated domestic oven that had been made in the Dutch oven apparently was because in the Dutch oven there was no circulation of extremely hot products, in fact, steam was blown into the baking chamber, which had a tendency to lower the temperature of the atmosphere in the oven. The mixture of steam and hot air was probably considerably lower than that in the bricks of the oven walls and on the deck and ceiling.

The result was, therefore, that the hot sides of the oven radiated heat evenly from all sides into the rolls and resulted in an evenly browned crust. The increased moisture in the oven atmosphere probably also overcame the tendency of drying on the surface of the rolls.

In the case of the domestic oven, while there was some radiation, the greater part of the heat required to bake the rolls was conveyed to the rolls by the contact of the hot products with their furnace.

As there was less circulation or movement of hot products around the lower part of the sides of the rolls, the browning effect was not produced to the same extent that it had been on top.

This same reasoning may be applied to the explanation of how the cooking and baking of other foods is accomplished by an uninsulated ventilated domestic oven. Of course, I do not mean to say that all the heat penetrating the food is produced by the contact of the circulating flue products, but simply that a part is radiated into the food from the volume of air itself and the hot sheet metal sides.

Ventilated Oven has Rendered Many Years of Satisfactory Service

When we consider the insulated ventilated oven that maintains a cooking temperature after the gas is cut off, it must be conceded that, as there is no great circulation in the oven chamber, the baking or roasting is continued by heat conveyed into the food from contact with the surrounding air and by radiation from the oven walls and the volume of hot air in the oven.

The foregoing remarks do not mean that it is necessary to do away with the ventilated type of oven. It is, however, meant to give an idea of the difference in the two principles. The ventilated oven has for many years been very satisfactory and it will probably be for many years to come. The domestic cook will not stop to consider in what form the necessary heat to accomplish her cooking is transmitted to the articles cooked. As long as the results are satisfactory she is satisfied.

Chart 1 shows the temperatures obtained in the various types of gas ovens at different rates of gas consumption, the gas used having a B. t. u. around 670 and a pressure of 50-10 in. of water.

These curves are plotted in the following manner: The vertical lines are laid off to represent the rates of gas consumption in cubic feet per hour, the cross lines or horizontal lines represent the temperature in the oven.

For example, in the uninsulated and ventilated oven a temperature of 280 deg. was obtained when the gas was burned at the rate of 10 standard cubic feet per hour.

This is shown in the curve marked uninsulated and ventilated oven at the point where the curve cut the vertical line representing 10 cu. ft. per hour. It must be understood, however, that this temperature was obtained only after the oven had been allowed to heat at the rate of consumption of 10 cu. ft. per hour until the temperature became constant. Likewise, in each adjustment made, the temperature was allowed to become constant before recording the observations.

The effect of insulation can be very readily observed in these curves and I will discuss them further in connection with the results in Table 1.

Chart 2, although it bears no direct relation with Table 1 or Chart 1, will be described here in order that reference may be made to it in the discussion to follow. Chart 2 is drawn to show the heating and cooling in the different types of ovens when empty. The vertical lines represent the time element and the horizontal lines the temperature. In other words, the ovens were lighted at zero minutes and allowed to heat at the maximum rate of gas consumption at a pressure of 50-10 in. of water until the pyrometer indicated that

a temperature of 500 deg. Fahr. had been attained in the ovens.

How Data in Tables were Derived

During this time, minute temperature readings were made. When the 500 deg. Fahr. temperature was obtained the gas was cut off. Oven temperature readings every minute were continued until the temperature in the oven fell back to 200 deg. Fahr. The effect of insulation is again very noticeable.

Table 1 shows the results obtained in a series of tests which were made with an idea of determining the comparative theoretical efficiencies of the different types of ovens. Charts 1 and 2 will be referred to in order to bring out the important points.

The data in Table 1 were obtained by allowing the oven burner to operate at the rate of 20 standard cubic feet per hour with a gas pressure of 50-10 in. of water, the proper air adjustment also being made. The heating at the 20-foot rate was continued until the oven and flue temperatures became constant.

A sample of the flue products was then obtained, care being taken that only the flue gases passing through or around the oven came into the sample bottle. The analysis of the flue products is tabulated for each oven. The other items are: The total number of cubic feet of flue gas per hour, the number of cubic feet of excess air passing through the ovens per cubic foot of gas consumed, and the percentage of heat lost up the flue.

The total number of cubic feet of flue gas per hour was obtained by applying the following formula to the flue gas analysis of each respective oven:

$$Q = \frac{100 \times C \times R}{X}$$

Where Q = the total cubic feet of fixed products of combustion evolved per hour.
C = the cu. ft. of carbon dioxide (CO_2) formed by the combustion of 1 cu. ft. of gas burned.
R = the standard cu. ft. of gas consumed per hour.
X = the percentage of CO_2 in the flue gas.

The number of cubic feet of excess air passing through the ovens per cubic foot of gas consumed is determined by the following formula:

$$E = \frac{Q - (R + A)}{R}$$

Where E = the cu. ft. of excess air per cu. ft. of gas.
R = the cu. ft. of gas consumed per hour.
A = the cu. ft. of air necessary to completely consume the gas.
Q = the total number of cu. ft. of fixed products of combustion evolved per hour.

In order to calculate the heat carried away by the flue gases and vapors passing up the flue, the following formulae were used:

R = the standard cu. ft. of gas consumed per hour.
Q = the total cu. ft. of fixed products of combustion evolved per hour.
X = the percentage of CO_2 in the flue gas.
Y = the percentage of O_2 in the flue gas.
Z = the percentage of CO in the flue gas.
V = the percentage of N_2 in the flue gas.
W_1 = the weight of water in pounds formed by the combustion of one cu. ft. of the gas.
T_1 = Average room temp. in deg. Fahr.
T_2 = Average flue gas temp in deg. Fahr.
H_1 = mean specific heat at constant pressure of the CO_2 between temperatures T_1 and T_2.
H_2 = mean specific heat for O_2 between temp. T_1 and T_2.
H_3 = mean specific heat for CO between temp. T_1 and T_2.
H_4 = mean specific heat for N_2 between temp. T_1 and T_2.
H_5 = mean specific heat for water vapor between temp. 212 deg. Fahr. and T_2.

Where X, Y, Z, V are determined by the analysis of the flue gas: W_1 is taken as being equal to the weight of water vapor condensed per cu. ft. of gas consumed in the Junker's calorimeter or the value calculated from the analysis of the gas; and H_1, H_2, H_3, H_4, and H_5 are obtained from some reliable source.

Then $Q \frac{X}{100}$ (.11636) H_1 $(T_2 - T_1)$ Heat in B.t.u. carried away by CO_2

$Q \frac{Y}{100}$ (.08463) H_2 $(T_2 - T_1)$ Heat in B.t.u. carried away by O_2

$Q \frac{Z}{100}$ (.07405) H_3 $(T_2 - T_1)$ Heat in B.t.u. carried away by CO

$Q \frac{V}{100}$ (.07426) H_4 $(T_2 - T_1)$ Heat in B.t.u. carried away by N_2

$R \times W_1 \times H_5 \times (T_2 - 212) + R \times W_1 (212 - T_1) + R \times W_1 \times 970$ B.t.u. carried away by the water vapor.

TABLE NO. 1.

In tests conducted on four different oven types, the following data was obtained.

TYPE OF OVEN		UNINSULATED AND VENTILATED	NO.1 INSULATED AND VENTILATED	NO.2 INSULATED AND VENTILATED	INSULATED & THOROUGHLY HEATED
Consumption Cu. Ft. Per hour.		20.0	20.0	20.0	20.0
Flue Temp.		312°F	430°F	430°F	492°F
Oven Temp.		447°F	580°F	668°F	777°F
B.T.U. of Gas		678	675	668	672
Flue Gas Analysis	CO_2	1.1	3.1	5.7	3.5
	O_2	18.5	17.5	12.4	16.4
	N_2	80.4	80.4	81.9	81.1
Total Cu. Ft. of Flue Gas per hour		1607	842	310	707
Cu. Ft. of excess air passing thru oven per Ft. of gas.		73.5	35.2	8.8	28.5
Percentage of Heat lost up the flue		59.0	48.4	18.8	46.7

DATA OBTAINED IN OVEN TESTS

By comparing the curves on Chart 1 with the results in Table 1 a better idea of the actual performance of the ovens may be obtained.

It will be observed in Table 1 that the amount of excess secondary air carried through the different ovens varies greatly. It will also be noticed that the total cubic feet of flue gas per hour varies in the same degree, and that the percentage of heat lost up the flue is somewhat proportional to the excess air and total flue products.

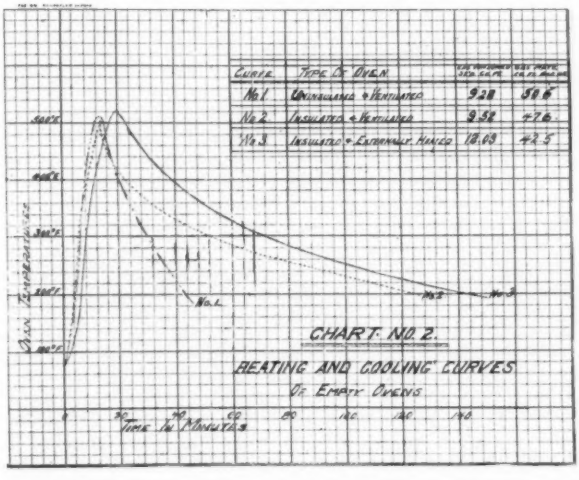
Although this proportion is by no means direct it is quite noticeable; i. e., the uninsulated and ventilated oven passing 1607 cu. ft. of flue products through the oven loses 59 per cent. of the originally developed heat with the products. The No. 1 insulated and ventilated oven while passing 842 cu. ft. of flue products through the oven loses 48.4 per cent. of its developed heat; the difference in proportion being accounted for by the presence of the insulation in the latter case.

In other words the loss of heat from the oven shell in the case of uninsulated oven was greater than in that of the insulated oven. The heat losses up the flues of the other ovens also show some similarity in proportion to the total cubic feet of flue products.

The same general proportion seems to hold for the oven temperatures obtainable in the different ovens, although there is quite a difference in the temperatures obtained in the externally heated insulated oven and the No. 1 insulated ventilated oven the difference being attributed to the type of oven, namely the ventilated and externally heated oven.

The question of heat retaining qualities in the insulated and uninsulated ovens can be very nicely observed in the curves on Chart 2. Curve 1 shows the performance of the uninsulated ventilated oven. The oven cooled from 500 deg. Fahr. to 200 deg. Fahr. in 33 minutes.

Curve 2 representing the insulated ventilated oven required 110 minutes to cool through the same range, and the externally heated and insulated oven requires 126 minutes.



SHOWING HEAT RETAINING QUALITIES OF OVENS

Advantages of Insulated Oven of Externally Heated Type

The oven which should receive considerable attention is the insulated oven of the externally heated type. This is the oven which, when perfected, will enable gas to compete with the electric oven, even though electric power should be greatly reduced in price.

The cooking done in this type of oven is accomplished without any flue gas coming in contact with the food. The heat which enters the oven must pass through the metal of the inner oven shell. The moisture from the food saturates the oven air and raises its temperature so that the cooking is done in a superheated vapor and hot air mixture. The oven door fits snugly over the front so that no circulation in or out of the oven is allowed unless excessive pressure is built up on the inside of the oven. In which case the heat will tend to expand the water vapor to such an extent that it forces its way out of the door crack.

It might also be well to add that with the use of insulation some problems have developed or will arise which must be solved. One of these problems or difficulties is that of overcoming the effect of the condensation formed on the inside of the slowly cooling oven. The solution seems to be found in the use of a non-corrosive metal or some enamel coating to prevent the rusting action of the condensed moisture.

Taking Over Country's Forging Business Would Increase Gas Consumption by Millions of Cubic Feet

F. F. Cauley Deplores Inefficiency of Available Gas-Burning Industrial Equipment—Suggests Planting Company's Industrial Man in Manufacturers' Plants for Stated Periods

Every gas man who has made a study of the conditions in the Industrial field realizes that a large number of our Industrial Appliances are not as efficient as they should be, asserted F. F. Cauley, manager of the Industrial Department of the People's Gas Light & Coke Company of Chicago, in his paper at the recent annual meeting of the Illinois Gas Association. Tests have shown that many of them are very low in efficiency. This is a serious handicap to the commercial man who is attempting to build up the business of his company. These conditions exist, however, and in order to bring the matter clearly before you, I think it best to quote a few instances.

Large Amount of Coal and Oil Used for Forging

Let us stop, and consider the large amount of oil and coal used in forges. It is something enormous. There are more or less forges operating in every city in the country, and I venture to say there are very few using gas.

If this forge business could be taken over by the gas companies, it would mean an increase of millions of feet of gas per month. The natural question is—Why don't we get it?

There are two reasons—low priced oil and low-efficient gas forges.

Within the past few months, however, the price of oil has gone up. In many cases gas companies have secured some of this forge business, even with the present forges on the market or by remodeling the oil forges to burn gas. I do not mean to say that no gas forges are used. On the contrary, small forges are used occasionally for light work throughout the country, but I am referring now to shops using forges where there is an oil consumption of 2,500 to 250,000 gal. of oil per month.

This is the business we should have if we had efficient gas forges to do the work.

Brass Melting

There is another class of business which is carried on all over the country which would bring a big revenue if we had suitable gas equipment to get it. I refer now to the brass melting business.

There are, of course, some gas furnaces doing this work in a small way. I think, perhaps, we have as many if not more operating on gas than the average company, but the appliances now on the market for doing this class of work are extremely low in efficiency and are not capable of getting the big business which we commercial men are striving to get.

We are perhaps getting our largest industrial gas consumption from oven furnaces, and if we would carefully examine these appliances, we would find that by regeneration or preheating the air, even these appliances could be greatly improved.

I do not want to appear pessimistic in this matter. On the contrary, I am very hopeful that we will find a way to correct the difficulties that confront us. For better appliance means increased gas consumption.

THE INDUSTRIAL APPLIANCE MANUFACTURERS

There are a number of firms to-day manufacturing industrial equipment. Their organizations are controlled by able men, but they are simply manufacturing and merchandising their goods at what they term a legitimate profit.

Of course they are paying some attention to construction, but owing to competition, they are building most of their appliances to meet the price of the other fellow. The question is often brought up—"Why doesn't the appliance man develop and build better equipment?" His answer has always been that he cannot afford to spend the money in development work.

Here is a condition which is vitally affecting the sale of gas, and I believe that all managers of gas properties should formulate plants for carrying on this development work. This does not mean that gas companies are to go into the appliance business. Not at all. It simply means that there must be closer co-operation between the appliance manufacturer and the gas companies.

SHOP EXPERIENCE FOR GAS COMPANY INDUSTRIAL MEN

It seems to me that gas companies would be starting in the right direction towards better equipment if they would delegate one of their best industrial engineers to not only visit the appliance manufacturers once or twice a year, but to go to their shops and live with them, so to speak, for a week or ten days at a time.

Under such a plan, the engineers of the gas companies would get right down to business in the shop and at the drawing board, where, with the combined knowledge and experience of both, they would, after careful study, bring our industrial appliances up to a higher point of efficiency.

The expense to the gas companies for carrying on such a plan, would be trivial compared to the increased business ultimately gained.

There is another important matter of which the industrial selling organization and the appliance manufacturers should have a better understanding, and that is, the necessity of selling industrial equipment on an efficiency basis instead of price.

We are selling appliances to intelligent and practical men who can appreciate, if shown, the value of skilled labor and material necessary to build good furnaces.

I have found that all factory men have experienced the results of buying cheap articles. I might add that some of them have been gas appliances, so that when our industrial engineers and the appliance men get together and hand our selling organizations blue prints of higher priced and better appliances there will be no more trouble in selling them than the cheap and inferior ones.

Proportion of Manufactured Products in Country's Exports Shows Great Increase

"American exports have been changing in character," states *The Nation's Business.* Two years ago foodstuffs made up 28 per cent. and finished manufactured articles 30 per cent. In 1916 these kinds of goods accounted for 20 per cent. and 48 per cent. respectively of the total values. During the same period the proportion of manufactured articles in our imports fell from 22 per cent. to 14 and of foodstuffs from 27 to 25.

The value of our exports to every part of the world, except the central European countries, increased in the two years, 1914 to 1916—by 1,200 per cent. to Russia, 400 per cent. to France, 217 per cent. to the United Kingdom, 210 per cent. to Italy, 130 per cent. to Spain, 185 per cent. to Argentina, 180 per cent. to Colombia, 140 per cent. to Japan, 55 per cent. to China, 100 per cent. to New Zealand, and 100 per cent. to South Africa.

Weaknesses of Public Operations More than Offset Advantages of Low Interest on Municipal Bonds

Lasting Good of Utility Sacrificed in Order to Make Temporary Showing—Removal of Unfair Competition Encourages Private Utilities to Improve Service

Experience in those states where the municipal utilities are subject to the same regulation as private companies has shown that there is a greater need of regulation of municipal than of private utilities, asserted Paul Bird in his paper on "Strengthening and Completing State Regulation in Illinois," presented at the recent annual meeting of the Illinois Gas Association. Only in those states placing municipal and private utilities on the same basis can fair comparisons be made between municipal and private ownership and operation of utilities.

Complete state regulation affords an opportunity to obtain a fair comparison of private and public operation. Under the Wisconsin law the municipal utility is subject to the same regulation as a private utility. Its books must be open to public examination; its service must be adequate and extended without favoritism; the cost of street lighting and other municipal lighting must be definitely estimated and charged up against the city proper, and rates must cover the cost of the service, giving no opportunity to shift part of such cost onto the general taxes.

Placed on common ground, the weaknesses of public operation have been found to offset, or more than offset, the advantages of low interest on municipal bonds.

For example, the management of municipal utilities is naturally inferior to that obtained by the private utility. This is due partly to the change in management with every change in the city administration. All the faults in the system can be blamed on the previous administration, which cannot then be held to accountability.

The tenure of office is so uncertain there is no stimulus for those in charge of the municipal utility to study and progress. In order to make a temporary showing, lasting good to the utility is sacrificed.

With the regulation of municipal, as well as private utilities, the danger of unfair comparison with municipal utilities is removed and private utilities are encouraged to make the investments in their business necessary to the furnishing of up-to-date and adequate service. But this situation creates enemies of state regulation, as well as friends. Political agitators, having for their platform municipal or public ownership, do not want the facts, as revealed by a fair trial of public operation. They welcome an opportunity to hamper the regulatory commission and throw it into disrepute. When public utility laws were drafted in other states, such as Illinois, Ohio and Oklahoma, municipal utilities were excluded from regulation.

Nine Principles of Efficiency in Vegetable Gardening

How High Yield may be Secured from Small Plot of Ground—Vegetables to a Value of $50 Raised on Plot 35 Ft. Square in One Season

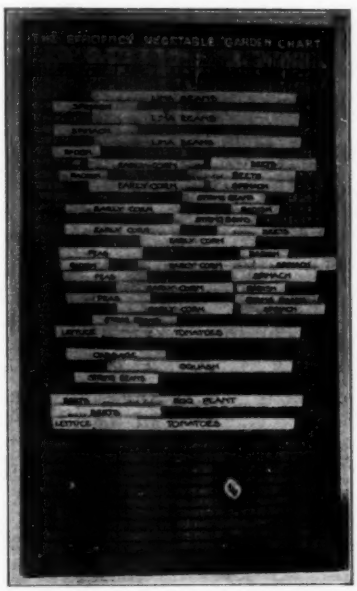
By CHARLES H. HODGES

EDITOR'S NOTE: *The gas industry, like other industries, is taking up the community garden idea as a measure of employee's welfare work. There can be little doubt that if properly carried out it can be made a profitable departure to the companies that undertake it. The really high-pay employee is the one who has the greatest balance to show after he has paid for his necessities from his wage envelope. It is quite conceivable, figuring it on this basis, that the five-dollar-a-day man in one company may be lower paid than the three-dollar-a-day man in another company in another community.*

The community garden as a means of reducing the cost of living may well be made an important factor in enabling employees to lay aside a greater proportion of their earnings, thereby making them in effect better-paid employees and better contented.

Many gas companies have available land that can be turned over temporarily for such purposes to their employees. But the mere furnishing of the land is but a detail. The employees should be taught to use it to the best advantage. A small garden in the hands of an ignorant gardener will not produce much. This will tend to discouragement and the ultimate failure of the scheme.

To assist gas company managements in the matter this journal made arrangements for this article. The author is an engineer in the manufacturing department of the Consolidated Gas Company of New York, and has carried on his gardening as a hobby for a number of years, with exceptionally good results. The time he has devoted to it has been of necessity limited, possibly forty minutes on an average each day.



This being an era of efficiency why not apply it to your vegetable garden? It will astonish you what even a small back lot will produce when accurate scientific methods are used. The French have practised intensive gardening since the sixteenth century with wonderful results and it behooves the man with the small plot to follow their example. It is no exaggeration to state that a person with a little experience can raise $70 worth of vegetables on a small area corresponding to one-half of the area enclosed by the lines of a tennis court, or 1,404 sq. ft. The vegetables raiseed will supply a family of five persons for six months. For the man who really wants a vegetable garden, several things have to be settled at the start. Let us assume that you have already decided the first question—the size of your garden.

LOCATION IMPORTANT

The next thing to do is to determine the location. You will find yourself somewhat limited on this point and will have to take the best you can after considering various advantages and disadvantages. Soil that is part sandy is better than stiff clay and soil that has been used previously for a garden is better than virgin ground. If you have to dig up new sod, it means more work or pleasure according to the individual.

The ideal spot is on a gentle southern slope well protected on the north by a hedge, barn or structure that will shield the crops from the north winds. Remember you have already decided to have a uniform systematic garden; that means that it will be a source of beauty instead of the proverbially ugly vegetable patch that must be kept out of sight. Remember you are going to have perfectly straight rows and plants evenly spaced on the rows and therefore you will experience a pride in the garden, that is unknown to the careless lazy gardener.

The principles that must be considered are as follows:

1—Abundance of Sun.

2—Rich Soil.

PROPERLY KEPT GARDEN A SIGHTLY PART OF LOCALITY

3—Systematic Planning of Garden.
4—Use of Glass Shelter.
5—Selection of the Best Strains of Seeds.
6—Inter-Cropping.
7—Frequent Cultivation.
8—Ample Water.
9—Constant and Even Growth.

Abundance of Sun

As the sun is nature's tonic it is important that the plants be supplied with a bountiful supply of it. Therefore study the shadows as they fall north, south, east and west during the spring, summer and autumn with the idea of locating your garden so that it will have a maximum amount of sun throughout the season. Look out for objects particularly on the south side of the garden that throw shadows. A little thought on this subject will prove a good investment of time. Sunshine means rapid plant growth, shorter time for each crop to occupy the ground and therefore more crops in your garden.

Rich soil means rapid and steady growth (that you remember is what you are looking for) to say nothing of better produce and the pride and satisfaction that goes with it.

Systematic Planning of Garden

This is a most important factor and should be given very careful thought, for efficient arrangement means much larger returns because it enables you to make more crops on the same plot. The writer has used with great success "The Efficiency Garden Chart" shown in cut. This chart is a wooden board 7 x 12 in. with slots to represent the rows in which cards are inserted to represent the different vegetables. It represents the garden with rows of any length a foot apart running north and south. The months, March to November at top is the calendar of the chart. The rows are numbered for convenience and adjustable cards in the rows indicate the vegetables.

The lengths of the cards have been determined by the time (according to the calendar) that each vegetable (seed or plant) will occupy its particular row. Each vegetable is planted the entire length of the row for its allotted time. For example on row 16, radishes are planted (the entire length of the row) an April 1 and removed about May 15. Early corn can be planted after the radishes and is also planted the entire length of the row.

The spacing for each month varies in proportion to the rapidity of vegetable growth in each particular month, the July space being wider than March or November. For example if the radish card is inserted on April 1 it will indicate that the radish will occupy the ground about 1½ months, while if it was inserted say, July 1, it would require about one month due to more rapid growth at that season.

Row 30 shows the lettuce and tomato cards lap indicating that the lettuce was put in the row on April 1 and several weeks before they were removed the tomato plants were put in between the lettuce plant on the same row (for its entire length) and hence got several weeks earlier start.

Early corn is planted between pea rows several weeks before the pea vines are removed, thus giving that much earlier start.

Row 25 shows squash started between cabbage and string bean rows. As the season progresses the cabbage and string beans are removed as indicated by the tags thereby allowing the necessary room for the squash to spread.

The desired vegetable cards are first selected and they are so arranged to fill up as near as possible all slots on the chart, *always* remembering to follow the general rules of gardening as to spacing, etc.

Use of Glass Shelter

"The idea of obtaining early produce with help of glass is mentioned in 'Le Oliver de Serres' (1539-1619); but the originator of forcing vegetables on more or less scientific lines was LaQuintine (1620-1688), head gardener of Louis XIV, who had to supply the table of his august master with delicacies all the year round. His methods and ideas were soon adopted by the market gardener in the outskirts of Paris."

To the gardener some form of glass cover, cold or hot frames, gives greater efficiency. Your season is lengthened about two months, if you start your garden a month earlier and continue it a month later. Just think, fresh vegetables one month ahead of time, to say nothing of being away in advance of your neighbor's garden.

ACTUAL AMOUNT OF VEGETABLES OBTAINED FROM A PLOT 35 FT. SQ. USING EFFICIENCY VEGETABLE GARDEN CHART, DURING A VERY POOR SEASON.

Vegetables	Quantity	Price Each	Value	No. of Rows 35 ft. Long	Remarks
Radishes	65 bunches	3c	$1.95	4	
Lettuce	43 heads	10c	4.30	2	
Spinach	10 quarts	15c	1.50	2	
Peas	21 quarts	12c	2.52	4	Poor crop
Cabbage	14 heads	10c	1.40	1	
Beets	93 bunches	10c	9.30	6	
Carrots	27 bunches	10c	2.70	3	
String Beans..	71 quarts	10c	7.10	4	
Corn	276 ears	3c	8.28	8	
Lima Beans..	32 quarts	10c	3.20	3	Poor crop
Tomatoes	244	2c	4.88	2	
Squash.....	38	3c	1.90	1	
Egg Plant....	5	10c	.50	1	Poor crop
Turnips	8 bunches	8c	.64	1	
			$50.17		

To the gardener some form of glass cover, cold or hot frames, gives greater efficiency. Your season is lengthened about two months, if you start your garden a month earlier and continue it a month later. Just think, fresh vegetables one month ahead of time, to say nothing of being away in advance of your neighbor's garden.

Selection of Best Strains of Seeds

In the animal kingdom we find that fine animals come from fine stock. The same holds good in the vegetable kingdom. High quality seeds produce high quality fruit. The writer once planted the seeds of two different grades of well known string beans under the identical conditions with the result that plants from the higher grade seed produced 50 per cent. more beans per row than the other.

High quality tested seeds are always the cheapest. Buy your seeds not necessarily from a large seed company but from one with an established reputation for good seed. Poor germination of seeds upsets your plans and time is lost that can never be regained.

Intercropping is a very important factor of intensified gardening and is the system of planting two vegetables simultaneously side by side (one early maturing, the other late). The early vegetable is removed before the late vegetable which will eventually require the entire space. For example: radishes or lettuce can be planted

between cabbage rows, the radishes or lettuce being removed before the cabbage require the full space. Beets can be planted a month early between rows reserved for tomato plants and the beets will be removed from the ground before the tomato plants require the full space.

In order to be successful, one must know the strain and type of each vegetable, the exact time it will require in the ground, and the soil and season best adapted to its growth

Frequent Cultivation

Frequent cultivation accomplishes the following results: First, it keeps the soil broken up or in the form of a mulch reducing the evaporization of moisture; secondly, it enables air to get to the plant roots; thirdly, it keeps down weeds, and fourthly, it promotes the growth of minute organisms in the soil, that accelerate plant growth. Frequent cultivation, especially during the early part of the season, saves much weeding later. In other words, "get the jump on the weeds" early in the season and that is half of the battle.

The water problem is simply aiding nature by supplying ample water, but only when required, for too much water is often worse than none. A simple form of stationary water sprinkler to sprinkle the entire garden when a single valve is opened is very efficient. A thorough soaking is always more satisfactory than frequent light wettings, for the latter merely cause a hard crust to form on the surface of the ground and tend to encourage the plants to put forth surface roots. These roots will always have to be cared for with water or you will lose your plants during the next dry spell.

The best results are obtained if the plants are never permitted to let up or stop growing. When this occurs even for a short time the plant cells harden, and like the calf that is poorly fed when growing, the plants never catch up. When a stoppage occurs, water or fertilizer of some kind should be immediately applied to stimulate and encourage growth before it is too late.

Utilities Should Be Protected Against Possible Municipal Competition

Lack of Such Provisions in Laws of Many States Hampers Growth of Utility and Consequently is Conducive to Inadequate Service

Although it is generally recognized that needless competition hinders public utility development, is uneconomic, and places a burden upon companies which the public must share in higher rates and poorer service, only about half of the states regulating gas and electric utilities have provided certificates of convenience and necessity, and in seven states having such a provision, protection is not afforded against municipal competition, declared Paul Bird in a paper presented at the recent annual meeting of the Illinois Gas Association.

In Illinois the law contains the certificate of convenience and necessity provision and the commission in its decisions has clearly established the policy of protecting invested capital from harmful competition and protecting the public from the inconveniences which necessarily attend the establishment of duplicate public utility systems. However, no protection is afforded as against municipal plants. The way is left open for the partial or total destruction of private utility property by the establishment of a competing municipal utility.

The municipal utility being free from regulation is not a fair competitor for a private company subjected to constant regulation. This risk, over the risk in states having complete protection against unnecessary municipal as well as private competition, should be recognized in fixing the fair rate of return—should be, for otherwise new or free investment funds will avoid investment in this state in favor of investment in the states affording utilities fairer and safer conditions. This situation would be more marked in Illinois were it not for the fact that public utility development in this state has already reached a high stage. However, in view of the great possibilities for rapid progress in public utility development no state, however far advanced it may be, can afford to discourage investment in her public service companies.

Indeterminate Permit

Under proper regulation there appears to be no reason for continuing the unsatisfactory and haphazard bargaining with utilities by means of the term franchise. With expiration of a franchise come disturbances harmful to the utility and the public served, affecting the upkeep of the property, the service furnished, and the financing of the utility.

In Massachusetts these disadvantages were early recognized and remedied by the adoption of what were called "grants of location" or franchises granted for an indefinite period during good behavior.

Indeterminate franchise forms have been adopted by the Federal government; for example, franchises granted by Congress to public service companies operating in the District of Columbia, Porto Rico, and the Philippine Islands.

The indeterminate permit provision was written into the Wisconsin law and has proved satisfactory to the companies and the public. In that state all franchises were arbitrarily made indeterminate by law in 1911.

Indiana adopted the indeterminate permit provision, leaving the acceptance of the indeterminate permit optional with the utilities. Commissioners in both these states have publicly pointed out the advantages of the indeterminate permit.

In states where the indeterminate permit has not been adopted a company may be required by the state commission to make large investments in extensions and improvements in service far beyond the requirements in the franchise agreements between the company and the local authorities.

Likewise the regulation of rates by state commission may go beyond the restrictions named in the franchise, but the state commission has no means of assuring the company that it will be permitted to continue to earn a return upon its investment or that its property will be worth more than scrap value after the expiration of the franchise term.

The continuing of such risks to public utility investments and the imposition of local bargaining upon a company subjected to state regulation of rates and service is an unjust burden upon the company which will be reflected in poorer service or higher rates to the public.

Metal Working Machinery Production of Country Very Large

In a year this country has exported eighty million dollars' worth of metal-working machinery, including the delicate equipment of watch factories as well as heavy lathes on which guns of the largest size are turned. As for domestic demands, it was understood not so very long ago that in a very active period of ten days purchases of heavy lathes alone involved expenditures of three million dollars.

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Encouragement for the Manufacturer

The gas companies are tending away from the attitude of blind acceptance of the manufacturer's claims in selecting the appliances they put on sale. This tendency is plainly reflected in recent association discussions and is one that should provide a great deal of encouragement to the manufacturer who takes a pride in the appliance that bears his name.

The companies have come to a realization, keener than ever before, that it is their business to sell gas—not to sell appliances. The cheap range is easier to dispose of to the consumer, but it is likewise an everlasting opportunity to a competitor to come in and take away the fuel business.

The gas company engineers are being given a broader scope. The company wants to know for itself which is *really* the most efficient equipment for burning gas. To a greater extent the engineer is becoming the arbiter as to what appliances will appear on the sales floor. This is as it should be. Every deviation away from this principle provides just one more weak link in the armor of the gas industry.

It is likewise the condition that the conscientious and farseeing manufacturer has always hoped for. When appliances are bought mainly on the manufacturer's say so as to their capabilities the price factor is too strong a consideration. The appliances must be sold cheap or there would be no sale.

Every moral and business instinct of the intelligent manufacturer naturally revolts from such a condition. His interests are indissolubly linked with the interests of the gas business. Everything that injures the repute of the gas industry diminishes the ultimate value of the business he has built up. Such a manufacturer welcomes the most rigid investigation of his product. No one more than he welcomes an intelligent and rigid selection of gas company appliances.

Such a course drives away the shyster; makes "quality merchandise" an actuality. It likewise gives him the opportunity of putting into his product the money, the workmanship and the intelligence, his experience and knowledge tell him should be put into it, primarily in the best interests of the gas industry, but just as directly in his own interest.

Sleeping to Promote Efficiency

Most gas company executives appreciate the need of their subordinates being properly nourished. Some companies consider it a good investment to spend money on lunch rooms, etc., to insure that this condition will actually exist. There is another factor that contributes to efficiency, equally important, if not more so than the factor of proper nourishment, that little is being said in regard to. This is the matter of sleep.

It is a factor too that may be applied to the executive as well as to the subordinate. There can be little question, especially in the case of the high grade man, that,

if overtime be eliminated almost entirely, and he gets his proper proportion of sleep, in the course of a year his total productivity to his company will be much greater even though he may have labored several hundred hours less.

Take another factor. How much in dollars and cents is the total loss occasioned to the gas industry by so apparently insignificant an item as the ordinary cold. Perhaps very few days of actual labor may be lost through such cause, but what is the quality of the work obtained from a man laboring under such conditions? It does not seem extreme to state that it is a little greater than seventy-five per cent., if that, the efficiency of the individual under normal circumstances. Yet one of the main causes of colds is lack of sleep.

The gas company executive should see that his subordinates get all the sleep their systems require; perhaps a little more. He should also make sure that he too is getting the amount his system requires.

Sleeping as a means of promoting personal efficiency is a system that needs little recommendation. It speaks for itself in the results obtained.

Gas the Best Lighting Agency

"Gas lighting," asserted one whose whole life practically has been spent in the lighting fixture business—not gas-lighting fixtures alone, but electric lighting fixtures as well, "I have always found to be the easiest lighting on the eyes."

Does not that tell the whole story? Does it not supply the final argument?

Smoky ceilings! What does this disadvantage amount to? It is a slow process at best before it becomes noticeable. A coating of paint or calcimine or a fresh papering, perhaps once in a year will correct it entirely. And in that time, even eliminating the gas lamp, an ordinary settlement of natural dust will make such renovation necessary—even in these days of the vacuum sweeper—to the fastidious.

The necessity of raising the arm instead of merely extending it to light the unit! This at the worst is but an insignificant physical exertion.

The heat of gas lamps! There is heat thrown off also from electric lamps, not so much so, but an appreciable amount. This so-called disadvantage is a positive advantage in the winter and in the summer the windows are open and the heat thrown off is in general too high above our heads to be noticeable.

But the welfare of the eyes is something real. After all, this is the whole aim of artificial illumination. Injury to the eyes is irreparable and if we lose the use of them we cannot get new ones.

Physicians can correct minor injuries or strains, but the process of so doing is very often painful and the remedy afforded is a lifelong nuisance at the best.

There can be no doubt that we have a salable product. We must devise a more efficient means of selling that product.

By some system of installation and maintenance we must show the public—a vast part of which has slipped away from us—that gas for lighting is the best lighting agency they can obtain. We must impress it with its distinct bearing on the welfare of the eyes. And we must make this benefit easily obtainable and reduce to the minimum these minor disadvantages.

Rates

In the discussion of rates it is usually overlooked that the gas business was the first to adopt class rates. Electric companies have always used different rates for different classes of business, and instead of reducing the number of classes there has been a tendency to increase them. The first classes were simply lighting rates and power rates. Now we find lighting rates, power rates, vehicle rates, heating rates, special off-peak rates, and wholesale combination rates.

With each new use there appears to be a new rate system. In some cases this has resulted in so much complication that it takes an exceptional person to tell a prospective consumer just what rate he should purchase his current under if he wishes to have the lowest possible bill.

As has already been stated the gas business was really the first one to adopt the class rate. When the gas range business was first developed the rates in most cases were so high that just as the electric light companies cannot sell electricity for heating purposes at their lighting rates, the gas companies could not sell gas for cooking purposes at the same rate that they sold it for lighting.

As a result many companies made a special cooking rate, set a fuel meter and sold the gas used for the gas range at a lower rate than they sold it for lighting purposes. Gas companies, however, instead of maintaining these two classes of rates and adding still more classes as they conquered new fields gradually reduced the lighting rate, while the cooking rate remained stationary.

The result has been that now practically all gas companies sell gas for both heating and lighting at exactly the same rate. Many companies even carry this flat rate basis so far as to sell gas for all purposes, including industrial fuel for exactly the same rate.

In view of the fact that the electrical industry has found it so profitable to continue its class rates that in the final analysis the management of gas and of electric companies is so similar, in many cases both the gas and electric companies in a city being under the same management, it seems remarkable that gas rates should be handled in a manner so different from that in which electric rates have been handled.

A study of the situation indicates that the policy pursued by the electric interests is more profitable than that pursued by the gas interests. There is every reason

to believe that it would pay the gas industry to sell gas for lighting at one rate, gas for domestic use at another rate and gas for industrial uses at still another rate. This of course will make the book-keeping a little more difficult and expensive, but it will surely bring in an additional revenue sufficient to more than make up for any increase in the cost of accounting. As a matter of fact, a rate could be worked out with three charges; one for the cost of accounting, one for the maximum demand and one for the gas actually used, which will equitably take care of all classes of business and at the same time allow each different class to pay a different rate for its gas.

Educating the Public

Most gas companies that have built new buildings during the past few years have included in their plans an auditorium. In many cases these auditoriums are used little if at all during the day time. Would it not be good business to use them for free moving picture shows? Already there are available many films that would be suitable for such purposes. It would also be possible for the large companies to have special films made showing the manufacture and utilization of gas. In this way the public could be better educated than in any other way and at the same time the cost would not be great.

This would certainly be a very satisfactory way in which to use the auditoriums at periods when they otherwise would not be in use. Department stores having auditoriums always endeavor to make the most effective use of them. The gas company is in the merchandising business just as much as the department store. It is in the business of making and selling gas. The department store is in the business of either making or buying merchandising and selling it. The greatest difference between the department store and the gas company lies in the difference between overhead and annual gross profit. The department store will, in fact must, have annual sales that are several times its total capitalization. Gas companies rarely if ever succeed in selling enough gas and appliances to make the total annual revenue equal the total capital invested. The department store, therefore, is evidently a better merchandiser than the gas company.

This being the case why should not the gas company endeavor to use its auditorium as effectively as the department stores use theirs? If the department store finds it profitable to give free moving picture shows on the manufacture of silk why would it not prove profitable for the gas company to give free moving picture shows on the manufacture and use of gas and gas appliances?

It is certain that such a procedure could do no harm. There is every evidence that it not only would build good will but that it would also have a very strong tendency to increase the revenue.

The Secret of Preparedness

"The cause of the present preparedness of the Central Powers is the system that has been in use in Prussia since 1640, when the Great Elector, impressed at the age of 20 by the deplorable condition of Brandenburg, started to reform it. His first step, and his continuing policy thereafter, were to insist that the head of every department should be a trained expert, and that he should labor unremittingly to improve his department. . . . The same system has continued without pause, and is now in operation at full speed."

These are the words of Rear Admiral Bradley A. Fiske, U. S. A., taken from an article that appeared in the *Independent*. They show how simple, after all, the way to efficiency and preparedness really is. All that is necessary is to place at the head of each department a trained expert and put it up to him to make his department the best department in the organization.

There is no question but that this system has worked in Prussia. From an insignificant weak power it has grown to be one of the most prominent and the strongest in Europe. Everyone will admit that this is due almost solely to the efficient organization of its government and its industries.

The gas business is by no means weak and insignificant, but is it as big and powerful as it might be? Is there at the head of every department of every gas company a trained expert who labors "unremittingly to improve his department?" Is the commercial manager of each company a trained merchandising man? Does he understand why the other merchants in town are making a success or a failure? Is the financial man the best financier in the community? Is the chief accountant looked upon as a better accountant than any other accountant in that vicinity? Is the engineer so famous that the newspapers and periodicals are glad to print stories of his achievements? Does this rule hold true all along the line?

In other words is the head of each department far ahead of everyone else in the same profession that everyone in the community admits that he is better than anyone else doing work of the same general nature in the city or county?

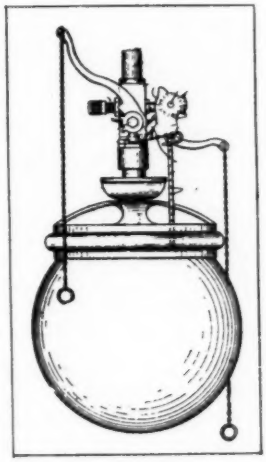
In every gas company where this is true there is never any municipal ownership agitation. The company is always receiving favorable publicity from the press and the business is forging ahead. Under such management it cannot fail to force ahead. The gas industry is now facing keener competition than it has ever before faced at any time throughout its history. It therefore, is necessary to prepare to meet this competition. The secret of meeting it successfully is very simple. Rear Admiral Fiske has given it in these few words: "Insist that the head of every department be a trained expert and that he labor unremittingly to improve his department.

Patents Pertinent to Gas Industry

Gas Lamp Provided with Flash Pilot Lighted by Abrasion

Patent No. 1,212,155; described in Patent Office *Gazette*, 1-9-17, page 645. Frederick H. Pomeroy, Haverhill, Mass., assigned to Safety Gas Lighter Company, Haverhill. Filed June 4, 1914. Serial No. 842,927. (Cl. 67-20-1.)

This ignition device is intended to be applied to any standard inverted mantle unit, and consists of a combined gas cock and pyrophoric gas igniter which is operated by a pull chain. The downward pull on the proper chain opens the passageway through the cock and allows gas to pass to the main burner. At the same time a small opening is made to the pilot tube which allows gas to flow into this tube. Simultaneously with these operations, an abraiser is moved forward to engage a ratchet, this sending a shower of sparks downward. The pilot tube is perforated throughout its length so that the gas escaping from the first opening is ignited, which in turn ignites the gas escaping from the second opening, etc., until the pilot is lighted on the end, this in turn igniting the gas at the main burner. The pilot light is then extinguished.

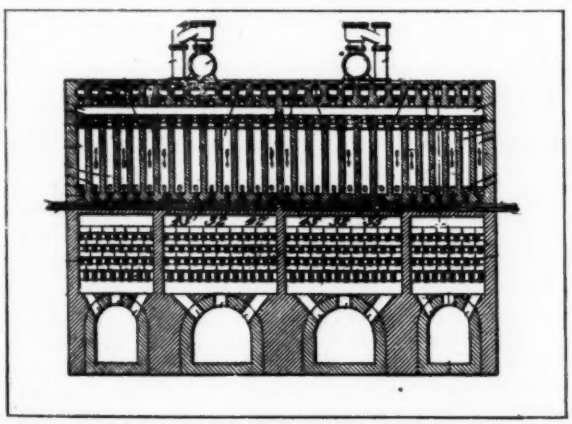


IGNITER OPERATED BY CHAIN

Heat Supplied to Coke Oven Is Equalized

Patent No. 1,211,502; described in Patent Office *Gazette*, 1-9-17, page 419. George E. Thackray, Westmount Borough, Pa. Filed Oct. 28, 1913. Serial No. 797,701. (Cl. 202-9.)

Extending longitudinally under each oven of a battery of horizontal coke ovens are a number of regenerators, those under the end portion of the oven being shorter than those under the central portion. The ovens are provided with vertical heating flues, which are connected by ports to a horizontal channel under each oven. Connections are provided between the regenerators and the horizontal channels. A burner is provided at the lower end of each heating flue, distribution pipes of different lengths beneath the heating flues being adapted to supply gas to the burners in groups, one set of distribution pipes controlling the flow of gas to the groups of vertical heating flues at the ends of the oven, while another controls the flow of gas to the heating flues of the intermediate portion of the oven. This equalizes the heating of the oven.

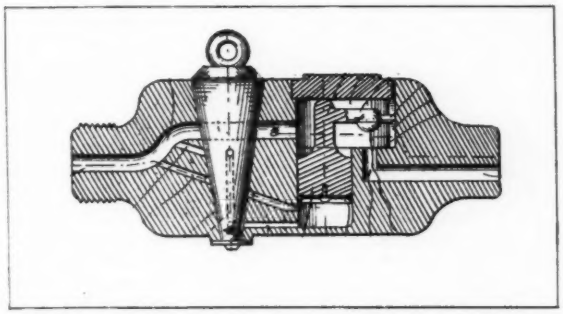


A BURNER AT THE LOWER END OF EACH FLUE

Gas Valve Closes When Pressure Is Reduced and Again Renewed

Patent No. 1,209,182; described in Patent Office *Gazette*, 12-19-16, page 919. Bert Lough and Robert E. Miller, Morgantown, W. Va. Filed April 27, 1916. Serial No. 94,044. (Cl. 67-115.)

Extending through the valve are longitudinal inlet and outlet passages which are offset with respect to each other. On one end is a vertical chamber in which a valve operates, gravity tending to force the valves downward to close the outlet passage. A turning plug is provided with a Z-shaped passage. In ordinary operation the valve is shown as in the diagram. Gas flows through the inlet passage, around the turning plug, through the valve chamber and passes out of the outlet. The valve is maintained in open position by a pressure which is built up under the valve supplied through the inclined passage. Should the pressure fall, the pressure on the under side of the valve is reduced, and gravity closes the valve. In order to re-establish the flow of gas, the turning plug must be turned until the Z passage therein registers with the lowest horizontal passage and the upper diagonal passage. This builds up pressure under the valve and raises the valve off of the outlet opening.

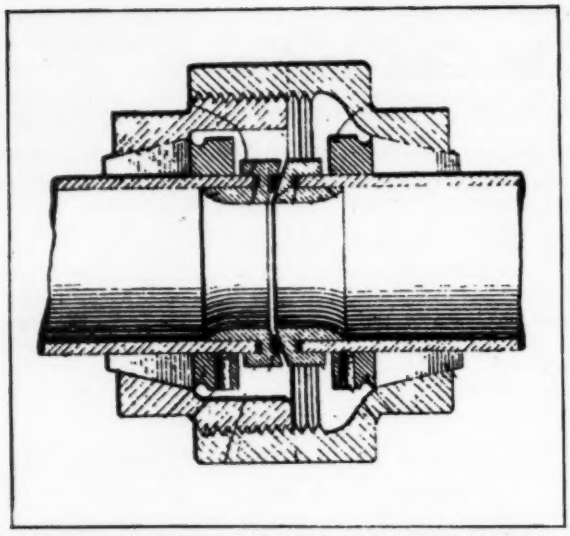


VALVE MAINTAINED IN OPEN POSITION BY PRESSURE

Pipe Union Locks Pipe Ends Together

Patent No. 1,209,887; described in Patent Office *Gazette*, 12-26-16, page 1197. George E. R. Rothenbucher, New York City. Filed Feb. 26, 1914. Serial No. 821,117. (Cl. 137-28.)

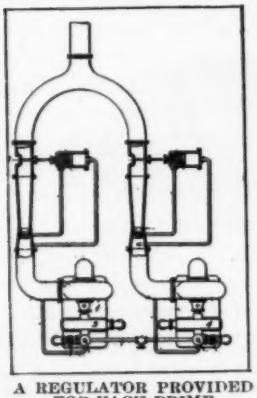
This pipe union comprises two tapered clamping sleeves, one being fastened to the end of each pipe to be joined together. Two coupling members are provided, sliding on the tapered sleeves, and adapted to



COUPLING MEMBERS HAVE SLIDING TAPERED SLEEVES

engage each other. When these are made up the clamping sleeves are drawn together and clamped around the pipe ends. A ring-like cap, formed with an annular channel to receive the pipe end, and soft metal washers inserted between the channels to make the joint tight, complete the equipment.

Control of Pressure of Blower System Is Operated Automatically



A REGULATOR PROVIDED FOR EACH PRIME MOVER

Patent No. 1,210,030; described in Patent Office *Gazette*, 12-26-16, page 1246. Karl Baumann, Chorlton cum Hardy, England, assigned to Westinghouse Electric & Manufacturing Company. Filed Nov. 22, 1912. Serial No. 732,884. (Cl. 230-24.)

In this device there are two centrifugal blowers supplying air or gas to a single main, each blower having an independent prime mover. A regulator for each of the prime movers is provided, controlled by the pressure generated by the blower, and an equalizing pipe is connected between the inlets of the two prime movers.

Apparatus for Distilling Fuel

Patent No. 1,210,388; described in Patent Office *Gazette*, 12-26-16, page 1365. Henning Friedrich Wallmann, Chicago. Filed May 8, 1912. Serial No. 696,720. (Cl. 48-73.)

This apparatus consists of a number of vertical distillation conduits each having two opposite short, stationary, and two long, movable side walls, parallel to each other and constructed of heat conducting material. The long movable side walls are provided with openings for the passage of a gaseous distilling agent. On one of the two opposite long sides of each distillation conduit a movable heating chamber is provided with one or two of the long side walls as a part of the construction, and on the other of the two opposite long sides of each distillation conduit a movable chamber is provided for distillates with one or two of the long side walls also as part of the construction. Hot combustible gas and air are supplied into the movable heating chamber, while the fuel to be distilled is conveyed in a certain direction through each of the distillation conduits. A distilling agent, steam, is passed through the fuel in a direction transverse to the direction of the fuel conveyance towards the chamber for distillates, which is divided into several compartments for separating from each other distillates produced at different stages in the distillation. Each of the movable chambers is supported by means of rollers and each is moved in a direction opposite to that of the adjacent one. In addition to providing the means for producing the heating and the distilling agents, means are also provided for simultaneously cooling and discharging the residue of distillation, either coke or charcoal.

Automatic Gas Cut-off Operates when Fusible Metal Melts

Patent No. 1,211,975; described in Patent Office *Gazette*, 1-9-17, page 586. John W. Smith, Brooklyn, New York. Filed July 5, 1916. Serial No. 107,559. (Cl. 137-92.)

This automatic gas valve tends to close through the action of a spring, a fusible metal lock normally preventing rotation of the sleeve. When the fusible metal melts, the core of the valve turns and shuts the gas off.

Method of Revivification Uses Lime and Steam or Hot Water

Patent No. 1,211,713; described in Patent Office *Gazette*, 1-9-17, page 490. Emil B. Kinz, Oak Park, and Edson C. Wescott, Sacramento, Cal. Filed May 27, 1916. Serial No. 100,368. (Cl. 23-13.)

In order to revivify spent oxide so that it may be put back into the boxes, unslaked lime and steam or hot water are added to the oxide. This extracts the sulphur by separating from the oxide a soluble compound of lime and sulphur.

Thread Protector Engages Only Three Threads of Pipe End

Patent No. 1,211,477; described in Patent Office *Gazette*, 1-9-17, page 410. Martin L. Moore, Glen Osborne, Pa., assignor to Frick & Lindsay Company, Pittsburgh. Filed Sept. 24, 1915. Serial No. 52,407. (Cl. 137-91.)

This protector for threaded pipe ends is made of thin curved plate arranged in the form of arches; the base of the arches engaging the threads on the pipe. Additional material is added to the arches, in order to increase its efficiency in resisting a blow tending to crush it.

Oven Suitable for Combination Coal and Gas Ranges

Patent No. 1,211,916; described in Patent Office *Gazette*, 1-9-17, page 564. Charles D. Carter, New York, and George F. Birb, Troy, N. Y., assignors to Floyd-Wells Company, Royersford, Pa. Filed Oct. 3, 1916. Serial No. 123,502. (Cl. 126-36.)

This oven has an opening in the bottom, and a casing around the opening, with the gas burners in the casing. A movable baffle plate is arranged to cover the opening when the gas burner is not in use and at the same time covers a communicating passage-way between the oven and the flue, which is always open when the gas burner is being used.

News of the Gas Industry

Oil and Gas Bureau Appropriation

The Senate has vitalized the recent legislative act creating an oil and gas bureau in Texas by attaching as a rider to a minor house appropriation measure a section making $145,000 available for the Corporation Commission's new department during the next biennium.

It is provided that $175,000 shall become available for the balance of the present fiscal year, $60,000 for the fiscal years ending June 30, 1918 and 1919, respectively. Concurrence of the House is necessary before the bill can go to the Governor, but this is considered sure.

A. L. Walker, Governor Williams' private secretary, will be head of the newly created bureau.

Mount Vernon, Ill., Plant Sold to St. Louis Company

J. J. Frey, president of the Southern Illinois Light & Power Company and the Saline Electric Company, with offices in the Central National Bank Building, St. Louis, has announced that he has closed negotiations for the purchase of the Citizens' Gas, Electric & Heating Company of Mount Vernon, Ill., for $500,000.

The company, which supplies gas, electricity, water and steam heat to Mount Vernon, was one of the properties of Cities' Service Company, with headquarters in New York.

Frey said it was his intention to later consolidate the Mount Vernon company with the Southern Illinois Light & Power Company, which already includes Hillsboro, Litchfield, Greenville, Gillespie and Collinsville in their scope.

The deal is of importance to the St. Louis public utility field, because in the future all supplies for the new company will be bought from St. Louis dealers and all the company's business transacted here. Heretofore all the supplies were bought in New York.

New Gas Plant at Greenville, S. C., in Operation

The new $45,000 gas plant which has been installed by the Southern Public Utilities Company at Greenville, S. C., was put in operation a short time ago. This was the initial test of the new outfit and everything worked smoothly, paving the way for the permanent operation of the plant. The plant manufactures coal gas that is manufactured by the old plant on Broad Street. This station will be kept in reserve for emergency.

C. A. Smith, of Cleveland, Ohio, engineered the installation of the outfit. The work would have have been completed several weeks ago, but for the delay in the arrival of some very essential parts of the machinery. The Gallivan Construction Company constructed the base and the building.

At the new plant, gas will be made from coal and the coke will be retailed by the Southern Public Utilities Company.

Town Lights Off

An unusual complaint was filed with the Public Service Commission by the Borough of Galeton, Pa., which gets its street lighting free from the Potter Gas Company under its borough franchise. Under a new schedule of tariffs, effective March 24, the borough will continue to get free service, but the lights must be extinguished during daylight. The borough holds that while it does not object to the lights being turned out while the sun is up, it does object to the expense necessary in connection with the employment of someone to turn off the lights and light them. It desires the company to pay for this service.

More Than Four Hundred in Attendance at Annual Meeting of Illinois Gas Association

Sufficient Applications at Hand to Bring Membership Almost to 500 Mark—F. W. Bedard Elected President for Ensuing Year

Over four hundred members and guests were in attendance at the annual meeting of the Illinois Gas Association, held last week in Chicago. The secretary's report showed that sufficient applications are at hand to bring the association's membership almost to the 500 mark.

In the course of the convention an additional gas fellowship at the University of Illinois was recommended. The question of insulation of domestic range ovens was extensively discussed and the need of better industrial appliances tacitly agreed upon.

The convention was called to order in the Hotel Sherman, at 10.20 a. m., March 21. The President, C. W. Bradley, was in the chair. Mr. Horace Clark occupied his accustomed place as secretary.

The weather was extremely kind to the convention as it was clear and warm. This resulted in an excellent attendance, close upon three hundred members being registered.

Secretary Clark announced in his report of the board of directors that he had received applications bringing the membership up to 498. This is a figure for other State associations to aim at. The whole tone of the convention was cheerful, the members feeling that, with determination, the various problems confronting the industry could be overcome.

President Bradley made an excellent chairman, the meetings moving along with quietness and dispatch. In his presidential address he called attention to the work of the association and particularly to the need of the introduction of new blood into association activities.

In the report on gas engineering it was recommended that an additional fellowship at the University of Illinois be established. When one considers the good work which has been accomplished during the short period in which a single Fellowship has been in operation it is to be expected that great enthusiasm prevailed at the possibility of the Illinois Gas Association being represented at the University by two Fellows.

The report of the Bureau of Mines was listened to with great interest, the chairman reporting that work was progressing most favorably and anticipating a very definite report at the next meeting.

CLOSER CO-OPERATION WITH GAS INSTITUTE

A. E. Forstall, president of the American Gas Institute, addressed the convention on the importance of closer co-operation in order to obtain more from the affiliation agreement existing between the Illinois Gas Association and the Institute. He outlined the plans for the conducting of a section in the Gas Institute News which should be devoted entirely to the news of affiliated societies.

The next business on the program was the paper by H. L. Dunavan on "The Gas and Coal Range, Is It a Step Forward or Backward?" This paper aroused discussion which presented many new ideas for the consideration of both the gas and appliance manufacturers.

O. T. Knight argued briefly for the introduction of full combination ranges; that is, ranges in which oven work may be done by gas.

H. D. Schall felt sure that favor would be found in such combination and believed that, owing to the convenience of the gas attachment, as much consumption would be obtained from this type of appliance as from an all-gas range.

H. E. Turner of Waukegan, while not opposing the sale of these ranges, spoke strongly for concentration on all-gas appliances. Messrs. Channon, Hoy, Stratton and Negley added to the discussion and greatly enhanced the worth of the paper.

The paper by Mr. Buttner on "Domestic Gas Ovens" was most valuable and the discussion extensive. Mr. Knight in his discussion of this paper argued that in the end economy of operation was first, with consumption second. Mr. Zander, in enlarging on this idea, stated that he believed to the individual user, economy was really secondary to the appearance of the appliance. Mr. Hoy crystallized the prevailing sentiment in the discussion of this paper by flatly stating that better insulated appliances were necessary. In reply to this Mr. Schall stated that the price at which it was necessary to sell these appliances prevented a really scientific and proper insulation against heat loss. Mr. Lundgaard called for a development of a higher efficiency of appliances by asking, "What was the use of efficiently manufacturing gas if our consumers wasted most of the heat?"

LIFE OF INSULATING MATERIAL

In reply to the question as to how long the usual insulation in a domestic range would last, Mr. Rahn stated that that was entirely dependent upon the housing. If such housing is substantial and of good quality Mr. Rahn thinks that a good insulation will last from four to five years in domestic appliances. He acknowledged, of course, that in higher temperatures such linings will not last for such a great length of time.

At the afternoon session most of the papers were devoted to a discussion of the management and financing of gas utilities rather than their operation. The first paper by Mr. Shraeder on "Public Utility Bonds" is well worth close study. One of the main criticisms of this paper, as brought forth in the discussion, lies in the fact that the practical side should be amplified and that individual cases should be given to show how a bond house really handles such business.

The paper by Mr. Bird on "State Regulations in Illinois" was read by E. D. V. Dickey in Mr. Bird's absence. In connection with the discussion of this paper, an article from the March issue of the *Gas Institute News* was presented.

The paper by A. S. B. Little on "Engineering Work in Connection with Rate Cases," is extremely valuable and should be carefully read by all those who are interested in such work. The discussion on Mr. Little's paper was not as complete as the paper warranted, but Mr. Elms stated that the results obtained by following such outlines as Mr. Little recommended, namely, in stating the value of an appraisal, frequently acted as an instrument of destruction to the company.

Mr. Elms very forcibly brought up the idea that with good management a company should be allowed increased returns over and above that allowed for a company not so efficiently managed. This was concurred on by the convention but the question arose as to how to judge efficiency of management by a definite standard.

At the third session of the convention, Mr. Strauch, the holder of the fellowship at the University of Illinois, gave an account of the work which he has been doing at the university and also described his work at the Decatur gas plant.

A committee was appointed at the suggestion of Walton Forstall concerning "Meter Testing in Connection with the Distribution of Standards." C. L. Day was named as chairman of this committee.

The election of officers resulted in the following: F. W. Bedard, La Salle, president; F. E. Luther, Chicago, vice-president; H. H. Clarke, Chicago, secretary and treasurer. The new directors elected are H. S. Whipple and J. B. Hirst.

The paper by Mr. Lungren on "Welding Steel Mains" was listened to with great attention and many favorable suggestions were brought out in the paper.

The paper by Mr. Farwell on "Gas Service in Illinois" was exceptionally interesting. It presented to the association the method followed by the commission in dealing in routine complaints.

In the discussion which followed, it was brought forth that there was great need of the standardization of forms and reports since a great deal of material which was required by the commission was frequently not available owing to careless handling.

Mr. Little stated that the great problem before the commission was to accomplish the work set out for it, without means provided and paid quite a tribute to the service rendered by The People's Gas Light & Coke Company.

He said that in every case in which an appeal had been made to the commission that it had been compelled to decide in favor of this company.

Professor Parr of the University of Illinois, under whose direction the Fellow from the Illinois Gas Association is working, gave a short talk on the work which has been undertaken and which showed that the right man had certainly been chosen for this important work.

At the afternoon session, the first paper was that by R. S. McBride, of the United States Bureau of Standards. Mr. McBride presented his paper accompanied by moving picture reels, which showed in a general way the work of this Government department.

The paper by Mr. Cauley on "Industrial Gas," while short, was a call to arms on the part of the gas company and appliance manufacturers to develop more efficient appliances. The discussion on this paper was very important and Mr. Lundgaard called attention to the need of giving the customer an efficient appliance.

Mr. Chapple stated that in order to get business it was necessary for appliances to be developed to a

higher standard of efficiency than at the present exists and cited the need of a service development bureau.

R. B. Brown, while acknowledging the need of such a bureau, did not entirely agree that this was the place to develop ideas, but thought that such developments should take place in the gas company's own shops.

Mr. McKee, representing the appliance manufacturer, presented their side of the case in most forcible language. He stated that the appliance manufacturers are absolutely unable, owing to competition, to price of materials, and to the selling price, to do anything of importance along development lines.

He drew attention to the fact that it was the place of the gas company to send their industrial man to the factory and not the place of the factories to send their representative to the gas company men. He also stated that it was practically impossible to get help from the gas company whereas among the various companies it was always possible for one to obtain assistance from the other.

The last paper on the program, by Mr. Taylor, on "Various Gas Coals," was listened to with great interest and taken in connection with the report of the Bureau of Mines, it is a valuable contribution to gas literature.

The following were among those in attendance at the convention: A. E. Forstall, Geo. G. Ramsdell, W. E. Hartman, G. F. MacBeth, C. O. Bond, G. B. Evans, R. B. Brown, J. J. Burns, J. H. Maxon, Henry Harmon, C. E. Chapple, and C. B. Babcock.

The banquet was well attended by over 400 members and guests and the usual fellowship for which the Illinois Gas Association is justly famed, prevailed. J. M. Morehead was a happy selection as toastmaster.

Kansas Rate Fixed at 35 Cents by Conference

The gas conference reached an agreement after a long drawn out discussion. It was on a proposal made by Mayor Edwards to have a sliding rate for gas next winter, by which Kansas City will pay 35 cents per 1,000 ft. for the first 4,000 ft. to each consumer and 50 cents for all gas over that amount.

The plan, if adopted, will go into effect September 1 and will last through the winter. It is understood by the gas companies that this is only a temporary rate for the coming winter.

The proposal carries a plan to penalize the gas companies if the pressure is not maintained. A deduction of 5 cents a thousand cu. ft. will be made for each inch that the gas falls below "good pressure." In case of complete failure of the gas for a stipulated time, the entire month's bill will be canceled.

Representatives of the Kansas Natural and the local company accepted the proposition and a referendum vote by the gas users will decide whether the plan will be placed in operation.

The agreement will be embodied in a contract which will bind the city, the local gas company and the Kansas Natural until next spring.

Mr. Doherty said he would guarantee 80,000,000 cu. ft. of gas for the north pipe lines of his company next winter. He said he would guarantee Kansas City 42 per cent. of that amount, or about 33,000,000 ft. Gas experts estimate 30,000,000 ft. is sufficient for the city's cooking and lighting.

Arrangements for the vote will be made immediately, through Mayor Edwards and the local gas company. The cost of the postcard vote will be paid by the gas companies. The result will be determined by a committee to be appointed by the mayor.

Knoxville's Range Campaign

The new business department of the Knoxville (Tenn.) Gas Company has just closed, during February, one of the most successful gas range campaigns ever conducted in Knoxville.

A total of 166 ranges were sold, 133 being cabinet ranges and 33 the low type.

The individual sales were as follows:

J. W. Sneed	22
W. E. Carden	48
H. B. Fancher	22
K. B. Duncan	31
W. S. Brown	33
Mrs. C. M. Welshan, Demonstrator	10

This journal is indebted to L. Gaston of the new business department for the foregoing information.

Reducing the Gas Bill

The service man in a Doherty property was called upon to fix a gas leak, and discovered ten bricks piled on the meter and the gas line broken. He naturally questioned the consumer about the bricks.

"I have been told," replied the artless person, "that a brick laid on the meter will reduce the size of the bill. I concluded that if one brick would do that, ten would cut it down that much more."

New Oil Fields Opened in Kansas

The bringing in of a gas well with a flow of 2,000,000 ft., at a depth of 1,150 ft., in Centropolis township, fifteen or twenty miles west of the Wellsville, Kan., field in a hitherto undeveloped district, has added new impetus to prospecting in Franklin county. This is the first deep well to be sunk and one of the three that have been vigorously pressed. It is on the H. Burton farm, drilled by S. M. Burden, for the Kapitan Oil & Gas Company, of Hominy, Okla. The Sentinel Oil & Gas Company, a Doherty interest, is down 1,700 ft. in the Peoria gas field, having found some gas and looking for oil. In the northern part of Centropolis township, not far from the Burton well, the Sperry Oil & Gas Company's drill, in charge of C. R. Crane, has gone down 1,400 ft., but no signs of oil or gas have been discovered.

A 100-barrel oil well on the Watkins Spring lease, two miles north and a mile east of Rantoul, was also brought in by Whiteford, Dunaway & Duffield, at a depth of 600 ft. Oil filled the well two-thirds full before it shot.

The J. B. Kirk Gas & Smelting Company brought in an 8,000,000-ft. gas well on the Ed Cain farm, five and one-half miles north of Iola, recently. Well known gas men vouch for the volume of this well and say it is the largest brought in in this field in fourteen years.

Large Number of Plants Become Property of Big Corporation

One of the biggest deals which has been consummated in this country thus far during 1917 has been arranged for whereby the Goshen Gas Company, Niles, Ind., Michigan Gas Company, and Warsaw Gas Company, will become the property of the National Utilities Company of Delaware. At present the Goshen Gas Company is owned by the National Gas, Electric Light & Power Company of Detroit, Mich. In addition to the Goshen Gas Company they also own the Warsaw, Ind., Gas

Company; Niles, Mich., Gas Company; Quincy, Ill., Gas & Electric Company; Port Huron, Mich., Gas & Electric Company; Bucyrus, O., Electric Company; Rome, N. Y., Gas & Electric Company; Carbondale, Pa., Gas Company; Cape May, N. J., Gas & Electric Company; Port Smith, O., Gas Company and the Joplin, Mo., Gas Company.

The National Utilities Company has just been incorporated under the laws of Delaware, with an authorized capital of $10,000,000 preferred and $10,000,000 common stock and has made all arrangements to also take over the National Properties Company, which owns the American Railway Company in the East, the Wilmington & Philadelphia Traction Company, the Tonopah Water Company, the Chester County Light & Power Company, the Newcastle Electric Company of Delaware and the electric transmission lines formerly owned by E. I. du Pont de Nemours Powder Company.

The new organization will also take over the Jersey Central Traction Company, which operates 41 miles of electric railway connecting several New Jersey towns. In all the companies under the new holding company will furnish electric light and power to 50 communities, gas to eleven cities and will operate about 623 miles of electric railway.

Van Horn Ely, former president of the National Properties Company will be the president of the new corporation.

As to what effect the change will make on the Goshen Gas Company is uncertain.

Valuation of Lewiston, Me., Plant Completed

The report on the valuation of the Lewiston Gas Light Company, Lewiston, Me., which Alton D. Adams, public service expert has been making, was sent by express recently to Augusta, Me., having been turned over to Mayor Brann of Lewiston a few days previous by Mr. Adams. A copy was delivered to White & Carter, the attorneys for the Lewiston Gas Light Company.

The reproduction and cost table follows:

Plant Item	$ cost.	Depreciation.	Value.
Land devoted to gas	$16,480		$16,480
Works strc't'res.	21,962	$4,392	17,570
Holders	56,550	15,378	41,172
Boiler plant	3,383	560	2,823
Water gas machinery	36,587	11,989	24,598
C. I. mains	140,796	20,146	120,650
Wrought mains and services	34,689	4,580	30,109
Gas meters	59,840	11,902	47,938
Gas tools and implements	594	57	537
Other equipment	395	39	356
General office equipment	4,036	586	3,450
Stable, etc., and equipment	1,137	224	913
Total cost	$376,449	$66,853	$306,596
Law organization and franchise.			$2,000
Engineering and supervision, 5 per cent			18,222
Interest 1 per cent			3,764
Omissions, injuries, taxes, 1 per cent			3,764
Total ov'head	$27,750	$8,147	$22,603
Cost and ov'h'd.	$404,199	$75,000	$329,199

The depreciation on the plant is figured as 18.55 per cent., thus giving the condition of the plant as 81.55.

The Gas Light Company according to the report owns 138,508.4 sq. ft. of land which the engineer values at $16,480. He says in a foot note, however, that this is high, averaging 11.9 cents sq. ft. and that such land could be bought in the city of Lewiston for 5.10 cents a sq. ft. The valuation finds that 224,273 ft. of mains have been laid at a cost of $47,704.

Mr. Adams has been working on the case for more than six months and has had several assistants here. Th gas company furnished him an office over their general offices, Ash and Park Streets. There is still some more work to do, but slight in comparison and the city will be ready within a few weeks to go before the commission.

Discounts Withdrawn by Pennsylvania Company

The Kennett Gas Company, supplying the towns of Kennett Square, Toughkenamon, Avondale and West Grove, Pa., have recently distributed a letter among their consumers announcing the discontinuance of discount on monthly bills. The letter is signed by James Austin, superintendent, and is worthy of reprint as it is fundamentally based on "service." The letter is as follows:

"The exceptional increase in the cost of oil, coal, labor, pipe fittings, property improvements, and in fact all products entering into the manufacture and sale of gas which has long affected this company has reached the point when some action is necessary to protect our business.

"Gas service is probably the only service that has not advanced, and it was hoped a change of conditions would occur that would be favorable to our company.

"The cost of production has continued to advance, and we are therefore obliged to announce that all discounts will be withdrawn after March Readings, 1917, and bills rendered in net amounts, and payable in ten days after presentation. We hope that present conditions will not force an increase in the rate of gas, and trust that consumers will understand the necessity of the above action taken at this time. We will be pleased to discuss this matter with you at our office at any time."

North Carolina Company Sold at Auction

The Gastonia County, N. C., gas plant was sold at auction in front of the court house, for the sum of $32,500.

The purchaser was William B. Anderson, of Philadelphia, in behalf of himself and associates.

J. W. Timberlake, of Gastonia, commissioner by appointment of the court, conducted the sale. It is likely that this sale will have to be confirmed by the court. Meantime, there must be an interim of 20 days, subject to advertisement, during which should there be an advanced offer of 10 per cent. upon this figure of $32,500, the sale would not be confirmed.

It has also been stated that the Concord Gas Company, built in Concord, N. C., some years ago by the International Gas & Electric Company, of Philadelphia, and which went into the hands of a receiver some time ago, was also sold at public auction. There were several bidders for the plant, but it was bought by W. B. Anderson, of Philadelphia, the price being $25,000.

Petition for Bonds

The Peru Gas Company, of Peru, Ind., recently filed a petition with the public service commission asking authority to issue $60,000 in bonds to refund a similar issue formerly put on the market by the Peru American Gas Company, which was merged with the Peru Gas Company in 1909.

Another All-Gas Kitchen in Boston Club

All-gas cooking has achieved another success in Boston, where the Stuart Club, in the Fenway district, has lately added a two-section hotel range and a broiler to its equipment, making its kitchen one of the all-gas type, doing away with coal entirely.

Old Colony Gas Company Holds Annual Convention

George P. Smith, Jr., in Keynote Address, Sets High Ideal of Service—Valuable Information in Papers and Discussions

The first annual convention of the Old Colony Gas Company was held Feb. 12. C. D. Bond, chairman of the convention committee, called the meeting to order at 8:30 a. m. and called upon George P. Smith, Jr., manager of the company, to open the convention. Mr. Smith spoke as follows:

"We meet to-day as the first annual convention of Old Colony Gas Company employees, to inaugurate another step in our plans for the improvement of ourselves, our company and our service to our consumers.

"Every true success comes from having an ideal, one worth while, and from making every act and every thought a step toward that ideal.

"The Old Colony ideal is to give every consumer the best of service. This is a goal that is hard to reach, for every improvement, every saving, every new idea makes a further betterment of service practical.

Consumer Most Important Part

"I hope this meeting will imbue all of us with the desire to increase our efforts toward better service, toward Golden Rule Service, the square deal to ourselves, our company and our consumer. And the consumer must be considered as our most important part, for without the consumer there would be no gas company and without the company no employee.

"I am glad therefore, to see that the first paper on to-day's program is 'Service to the Consumer,' the keynote of all our effort.

"Trace our ideal through all its variations. Our educational work makes each one of us better able to take our place in the community and thus to give better service. Our management's efforts to decrease our costs, not by decreasing pay, but by making our work more efficient, fits us to be better able financially to give the consumer service plus. Every forward effort you make counts toward thei deal. The better men and women you become, the more you train your minds, the more you broaden out your vision, the better your physical condition, the better your environment, that much more will you be better able to serve the consumer.

"We have a great many serious problems to meet. The great war has brought vast changes in our conditions, prices have reached unprecedented levels and we must have your aid in working out the answer to the grave questions that confront us.

"If you will learn all you can about your job, study its every detail and discard every waste effort, then study the man ahead of you, learn his job. Ask questions, take part in discussions at our meetings, read the gas magazines, make suggestions. You will find that you will get ahead faster than you suspect. Do all of these things and do them well. Charles M. Schwab, one of the world's master minds, has thus expressed it. 'The man who has done his best, has done everything. The man who has done less, has done nothing.'"

Following Mr. Smith's address, Thomas T. McCarthy gave a very interesting talk on the work of the employment board of the company. Mr. McCarthy explained the reasons for the board, which he stated were that the company might secure A-1 employees only, and thereby build up a permanent organization.

Gas Lighting Advantages

In connection with this matter, Mr. Smith showed wherein the board was a very good thing for both the company and the employees, as the company could be sure of securing the best of help, and the employee could be sure of being treated justly at all times.

Charles M. Lang spoke of the impartiality shown by the board on every occasion.

A paper regarding "Service to Consumer" was read by Miss L. C. Elliott, which contained many excellent ideas as to what real service should be.

Following the discussions on this paper, a stereopticon lecture was given by L. W. Geffine of the Welsbach Company of New England, on the manufacture of gas mantles. Mr. Geffine was assisted by Mr. Stetser, also of the Welsbach Company.

After the lecture, both Mr. Geffine and Mr. Stetser answered many questions in regard to gas lighting, especially its hygienic value.

A paper on "Burner Types and Maintenance" was read by James Shortall, wherein many important facts regarding mantles and burners from the time they were discovered by Baron Von Welsbach, up to the present time, were brought out.

A very important department of the Old Colony Gas Company is the accounting department, and in its behalf, F. A. Ward read a paper on the "Accounting Department and its Relation to the Public."

The first paper of the afternoon session was read by E. Vaughn on "Credits and Collections," and was discussed as follows by Mr. McCarthy:

"I do not find anything that I can take exception to. Of course there are a great many different ways of handling credits and collections, but as Mr. Vaughn did not express any special method, I could not take exception. The only thing I would like to impress upon the salesman is that he is one of the most important sources of information that the credit man can have.

Salesman's Aid to Credit Department

"Now the salesman often turns in an order signed by a certain party whom we have never heard of before, or a landlord might wish to install appliances for a tenant, and it is his first time buying; we have nothing to go by, that is, we know nothing about him unless al this information is given on the reverse side of the application or sales order. Therefore, I think that they should get all possible information and write it on the applications. For instance, if a man wishes to buy appliances which are to be installed at a different address from where he is living, he can give this information on the back of the sales card or application. This would be the very easiest kind of information which the salesman could possibly give. So the one most valuable source of information to the company lies in the salesmen themselves. I believe if they gave this the right kind of study it would be the greatest help to the credit department."

Mr. Smith agreed with Mr. McCarthy thati f the salesmen took the right point of view, that is, to get all possible information for the credit man, that there would be fewer delinquent consumers on the books. He also expressed the idea that the success of the sales department depended largely upon the success of the credit department, and if the salesman keeps this point in mind, he will be a better aid not only to the credit department, but to himself. This point was discussed by Messrs. Bond, Smith, McCarthy and Linberg.

A paper was then read by Mr. Connors on "Governors and Pressure Regulation."

Mr. Gritman, in his discussion of this paper, brought out that he thought that installing governors depended largely on the kind of appliance installed and the amount of gas consumption also had to be considered. He also suggested that if the governor was raised it would be better, as it would be out of the way.

Mr. Johnston and Mr. Burnett when asked about the troubles they had experienced with governors, gave their most important and frequent trouble of "seal blowing."

Mr. D. Rankin when asked if it was necessary to change the governors before installation, gave the answer that it was not necessary to change them before installation as they were all tested before leaving the store room.

Mr. Lang's discussion on above paper was as follows:

Value of Correct Business Expression

"Mr. Chairman, it has been very interesting to sit here and listen to Mr. Connor's reading, but I would like to correct one or two of the impressions which I think were received from this paper. One is, that the enginer at the works had to be constantly on the alert and not allow the pressure to go above 15 lb. or below 10 lb. as the governor is likely to act in error. That is entirely wrong. He could let the pressure go up to 100 lb. It would make no difference with the initial pressure of the governors on the main side of the governor, as long as it is not brought lower on the side of the consumers' pressure. Mr. Gritman in his remarks also said that the governor, in his opinion, should be raised, but it must be borne in mind that the governor is likely to plug and if it is set any higher it will blow the mercury out. If a man goes out and takes the plug out below the governor and says there is not enough pressure, he is wrong, for he has ample pressure."

Berthold Nussbaum, New England manager of the Business Training Corporation of New York, spoke on the "Value of Correct Business Expression." His talk, in part, was as follows:

"I was very much encouraged in looking over this program, because of the very important quotations that are made here. According to Katherine Blackford, 'Fat men rule the world.' I am glad to find myself in that class.

"There is another quotation that impresses me; that is the one given by Mr. Charles Schwab. He says: 'The man who attracts continued attention is the man who is thinking all the time and expressing himself in littleways.' I think that is coming pretty near the truth.

"When this subject was assigned to me, I was aware of the fact that any man's success in business is about nine parts thinking and one part expression. Most success comes through right thinking, and a lot of it. The expression is secondary. At any rate, we have got to polish up our expression of thoughts; therefore, I believe that correct expression is a pretty important thing nowadays.

"Another thing which shows the value of correct expression: The wonderful effect of methods of correct communication hase revolutionized business. When you stop to think that Europe to-day is just as near to you as Pittsburg was 25 or 30 years ago, you begin to think how closely connected we are. In three hours you can send a message to Europe, whereas it would then take about thirty days. In other words, a few years ago, the center of business was the community. To-day you are in touch with 1,000 communities who are working out these various problems.

"If a man came into your office and said, 'I calculate,' or 'I reckon,' he would be a joke. You would call him a 'Hayseed.' Therefore, my idea of a business man is one who is in constant touch with every source of information and everything that is a help to a business. Our methods of expression simply mean that unless we keep up with the idea that we must improve our expression, we shall be classed as a 'much-hedged-in-person.' Three good factors which we must put into practice are, reading, talking and writing.

"The man or woman who has not had very excellent schooling need not feel that he or she is shut out from the class of those who master good English. They have just as much chance as the one that has gone through college. It is important enough when I say that it is getting to the point where a man or woman is classed by the language or English which they use.

Good English the Business Man's Brains

"I remember when I was a youngster, I looked upon my own home town as the only thing . . . yes, in fact I looked upon it as my world. The church which stood next door to our house seemed the biggest I had ever seen. I even thought that the river that ran through our town was the next biggest thing in the world. You see, I was never thinking of the world outside of me, but I really found out where I was wrong. I was suddenly taken away from that community. I went around the world for one year. I learned that which I never knew or thought I would ever see.

"I will never forget the day when I went back to my home town. What a surprise it was for me. Everything had changed. I said to my mother, 'Good Lord, what has happened to our old Baptist Church? I thought they had torn it down just because it was remodeled. So you see, I had been mistaken.

"There is one thing we have got to do, that is, we have got to read as much as we can. That will give us facile and correct expression. Good English or good English expression is not a by-product of business, but is a business man's brains. Every bit of study which you put into that education or use is going to make you an effective instrument of business that is dawning now. Thinking correctly and cleverly is nine parts of the battle. The remaining part is getting your message across."

Following Mr. Nussboum's talk, Merle Abbott of the Weir Stove Company, Taunton, Mass., read a very interesting paper on "Construction and Burner Design of the Glenwood Range." In this paper he told of the construction of it, up to the present construction of their present model range.

Mr. Abbott gave everyone the opportunity to remark about the good or indifferent qualities of the Glenwood range, and in this way, he tried his best to give satisfactory answers to questions which were brought up. Various questions were asked on the condensation in the oven, but Mr. Abbott said that it was almost impossible to avoid all condensation in the oven.

As Mr. Sullivan was unable to attend the convention because of illness, the paper on "Welded Mains and Services" was read by Mr. Lang.

West Springfield, Mass.—Residents of Ashleyville seek gas service and have enlisted the activity of the selectmen in securing it. Last year, proposed construction was postponed owing to dearth of materials.

SMALL PREMIX BURNING IN OPEN-AIR—TEMPERATURE OF 2600° F.

New Burner, it is Claimed, Enables Combustion to be Completely Localized

A new gas burner has been put on the market by the Maxon Premix Burner Company, of 303 E. East Main Street, Muncie, Ind., which, according to the published claims of the manufacturer:

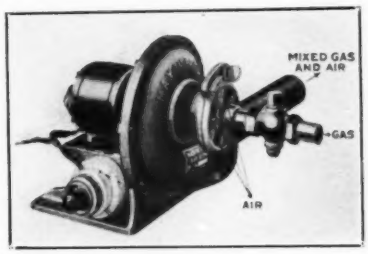
"Supplies a long-felt want in the application of gas. It gives to the gas company an appliance which enables it to take on and hold business hitherto deemed unapproachable. It gives to the user an appliance which enables him to produce results in economy and efficiency unattainable with any other fuel or apparatus.

"By thoroughly mixing the correct proportions of gas and air for perfect combustion, produces results far-reaching and of the widest scope. It enables combustion to be completely localized, i. e., the user can have his combustion take place at any point he desires, with the intensity he wishes, and concentrated as he wants.

"It compels a complete and intimate mixture of the gas and the requisite amount of air for perfect combustion, and thereby produces a combustion efficiency that cannot be excelled.

"It burns all the gas put through it, and does not waste it up the flues. It requires a minimum space for combustion, and therefore the depth of working chambers can be materially reduced with the resultant fuel saving, and allows unit application to individual fires, thereby giving the greatest control of individual temperatures, and the greatest operating economy.

"Likewise it eliminates the necessity for a large central compressed-air installation. It reduces the initial investment fifty per cent over that of any other type of similar apparatus and saves 75 per cent. of the power bill where pressure air is used.



SHOWING INTAKE OF AIR AND GAS

"It will produce any type of flame desired from a sharp oxidizing flame to a neutral and even reducing flame, and successfully burns all and any kind of combustible gas.

"It burns the minimum amount of gas with the maximum amount of efficiency, producing temperatures up to 2800 deg. Fahr. without recuperation or regeneration.

"It allows remarkable flexibility of control both in the character of the fire and the application to one type of furnace or another. It can be operated by anyone and installed with the greatest of ease.

"The smallest burner, known as No. 0 size, is designed for intermittent service, such as high-speed steel treating, welding furnaces, soft metal pots, bakeries, etc. The motor is of the Universal type, and can be used on any kind of electric current.

"The other three sizes of burners are equipped with motors for either 60 cycles A. C. or D. C., and are designed for continuous service.

Free Inspection Found Profitable

In order that gas lighting may give saisfaction to its users, it is of course necessary that the apparatus be in good order. The same is true with respect to cooking and heating appliances.

Companies that have organized inspection service departments find it greatly to their advantage, because of the larger volume of gas consumption which results, and also because of the increased satisfaction which customers find in using gas.

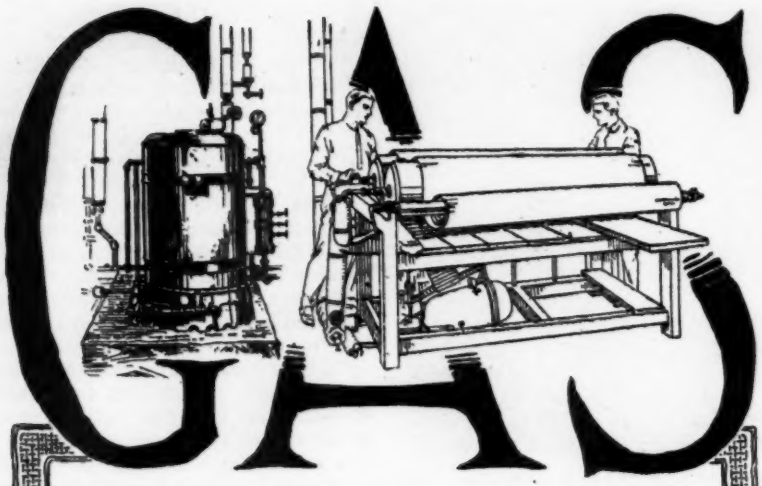
The Northampton (Mass.) Gas Light Company, which recently organized an inspection department, finds it a desirable adjunct to its business. As yet only a part of the company's territory has been covered, but in nearly every call made by the inspector, lights have been found that needed cleaning, readjusting and being put in good condition for operation.

When the inspector has made his friendly call, which has entailed no expense, in most cases, on the customers, the latter have had occasion to remark on the good service which the company is giving; and the superior lighting, or better results obtained from gas cooking apparatus, is a further source of satisfaction.

Often, the introduction of new appliances or added equipment of one sort or another, results from the inspector's visits.

TABLE SHOWING CAPACITY OF BURNERS ON ARTIFICIAL AND NATUARAL GAS

Natural Gas					Artificial Gas				
Size Burner	Maximum Feet Per Hour	Maximum B.t.u. Per Hour	Minimum Feet Per Hour	Minimum B.t.u. Per Hour	Size Burner	Maximum Feet Per Hour	Maximum B.t.u. Per Hour	Minimum Feet Per Hour	Minimum B.t.u. Per Hour
0	350	385,000	50	55,000	0	525	301.875	75	43,125
1	1,000	1,100,000	325	357,500	1	1,600	920,000	500	287,500
2	1,650	1,815,000	490	539,000	2	2,475	1,423,125	760	437,000
3	2,275	2,502,500	1,275	1,402,500	3	3,450	1,983,750	1,950	1,121,250



The First Aid to the "Speeding Up" of Business

—is the adoption of any method or machine which cuts costs or promises the possibility of increased production.

If, in your business, there is a process dependent upon Steam, you can obtain this First Aid to "Speeding Up" by installing

A Gas-Fired Steam Boiler

For extra or "rush" work requiring night, Sunday or holiday "overtime," it gives you steam quickly, economically and as long as you want it; for every need except power.

Simple and safe to run. Steam pressure, gas and water supply automatically controlled. Maximum gas consumption but 60 cubic feet per horse-power per hour. Makes no dirt, smoke or ashes.

You can see the boiler best adapted to your needs at the INDUSTRIAL APPLIANCE SHOWROOMS, 130 East 15th Street. Step in and get the facts.

Consolidated Gas Company of New York

GEO. B. CORTELYOU, President

"The Right Way is the Gas Way"

NEWSPAPER ADVERTISEMENT FOR INDUSTRIAL GAS

Industrial Fuel Publicity By New York Company

The above advertisement is typical of some of the excellent publicity being produced by the Consolidated Gas Company of New York. This ad appeared in the New York dailies and is one of the few gas company ads which have been used to point out the industrial possibilities of gas. More and more advertising space will undoubtedly be used to appeal to industrial users and the medium selected by the Consolidated has merits worthy of consideration.

Societies and Associations

THE ILLUMINATING ENGINEERING SOCIETY, Pittsburgh Section, held their monthly meeting of the Engineers Society of Western Pennsylvania, in the Oliver Building, Pittsburgh, Pa., in the auditorium on March 30. Prof. A. J. Rowland, Drexel Institute, gave a lecture on Elementary Lighting. The April meeting of the Society will deal with illuminating engineering in the moving picture industry and will be held at Cleveland.

The annual convention of the Society is to be held in Newark, N. J., some time in the month of September. Percy S. Young, vice-president and treasurer of the Public Service Corporation of New Jersey, has been selected by the Council to act as the chairman of the Committee on 1917 Convention. Mr. Young has accepted the appointment and the Council looks forward with high hopes to a most successful convention under his leadership. The selection of the place and date of this convention is decided upon each year by a Committee on Time and Place consisting of the vice-presidents of the five sections. Below are given extracts from the partial report of this committee submitted to and adopted by the Council on Feb. 8.

This location (Newark) was determined upon after receiving a most cordial invitation from Percy S. Young, of the Public Service Corporation of New Jersey, which is a combination gas and electric company. We feel that the interest which will be taken in the convention and the support of this company will undoubtedly make the meeting in this location a success in the way of interest and attendance.

It was further recommended that the third or fourth week of September be chosen as the time. The Council instructed the Committee on Time and Place in conference with the Chairman of the Committee on 1917 Convention to decide upon and report a definite date for that function.

Personal Notes

WALTER C. COAKLEY, who for many years was plant superintendent of the Toledo Railways & Light Company of Toledo, O., is to be general superintendent of a gas producing plant in Knoxville, Tenn., controlled by Henry L. Doherty & Company.

FRANCIS T. HOMER of New York, vice-president of the United Gas & Electric Corporation, has been elected president of the American Cities Company, New Orleans, La., at a recent annual meeting of the board of directors.

(*Cont'd on Page 16 of Advt. Sec.*)